

Building and Painting a
Matilda II
and **Panzer II**
In 1/48th Scale



A12 Infantry Tank Mark II "Matilda"
& Panzerkampfwagen II Ausf B (T-2)

Armor Modeling Vol# 5
by Kevin Townsend

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Matilda II and Panzer II****INTRODUCTION**

This diorama stars the British Matilda II Infantry tank. Although quickly outclassed as the war progressed, its heavy armor arguably made this tank the “Tiger I” of the early war years—a counterattack by the heavily-armored vehicles threw the Germans into confusion at Arras in 1940 and in the Desert the Italians had no answer for it.

Although the Matilda is certainly the main player in this work, the little Panzer II provides support. By themselves, each vehicle could be presented as a nice model. Together they tell a simple story of a British success in the Western Desert of late 1941. Perhaps a scene from Operation Crusader or the lifting of the siege of Tobruk.

In earlier articles in this series, we built our vehicles primarily stock, adding only some additional detailing or aftermarket detail sets. The same holds true of the Matilda in this work. However, the little Panzer II has seen a great deal of conversion work—not only to depict an Ausf B as seen in the Desert in 1941 (no quarter scale kit of this configuration is available), but also to provide a fairly complete interior.

While we have discussed my “Ten Commandments of Effective Composition” in most of the earlier works in this series, as we add more elements such as additional vehicles, more figures, more elaborate groundwork, etc., the compositional process takes on even more importance as we work to ensure our viewer “reads” our story in the way we wish. Inspiration for this scene came not only from several photos, but also from another of Shep Paine’s diorama pamphlets including in the old Monogram kits. So, like my earlier Sherman, this build is in some small way a “nod to the master”.

As always, the techniques and methods shown here are simply the ones I use—they are certainly not the only ones available nor do I make any claim they are the best. You are certainly free to use them as presented or as inspiration to develop your own methods. The best methods any modeler use are the simple those that work for him or her.

For this project, special thanks go out to Mr. Bruce Culver who provided the Bandai Panzer II kit and Mr. Mike Starmer who provided pertinent plans/drawings of the Caunter Camouflage pattern. Both gentlemen also provided invaluable research assistance. I hope you are not disappointed in what I did with your contributions.

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Matilda II & Panzer II

"Of all the tank designs produced since the inception of mechanized warfare, only a very few have influenced the fortunes of their respective armies to the same extent as the Matilda during the years 1940/41.

The very possibility of the Dunkirk evacuation was immeasurably strengthened by a counter-attack made by a brigade of Matildas at Arras in May 1940, which struck the flank of a Panzer Division commanded by the then little-known Major-General Erwin Rommel, causing casualties and confusion all out of proportion to the numbers involved.

Later the same year, General Wavell's offensive completely destroyed the much more numerous Italian armies in the Western Desert, and the weapon which ensured success was the Matilda, which at this period be-

came known as the Queen of the Battlefield. Wherever the Matilda appeared there was victory, for the Italians found that they could not penetrate the vehicle and came to regard it as a terror weapon."

-Bryon Perrett



I am a big fan of quarter scale armor kits. You can pack as much detail into one of these little kits as you can the larger 1/35th scale, yet as are much more economical on space. This entire little diorama fits in a space designed for a 5 x 7 photo.

The addition of a base and other elements allows a simple model to become something more—a story teller. Two models were used for this composition. While the Matilda is clearly the star of this show, the little Panzer II Ausf C also plays a vital role in the composition. The base is a picture frame with a piece of plywood inserted where the photo would normally be. The simple nameplate was made on my computer (using Microsoft PowerPoint), printed on quality thick paper, sprayed with Clear Matt to provide a protective layer, and attached to the base with double-backed tope.



THE REAL THING

Matilda II

Length: 15 ft 11 in
Width: 8 ft 6 in
Height: 8 ft 3 in
Combat Weight: 25 tons

Road Speed: 16 mph
Cross Country: 9 mph
Range: 160 miles
Vertical Obstacle Crossing: 2 ft
Trench Crossing: 7 ft
Fording Depth: 3 ft

Powerplant: 2 x 6-cylinder AEC or Leyland diesel 94/95 HP

Suspension: Coil Spring
Transmission: Pre-selector gearbox. 6-Speeds

Main Armament: QF 2 Pounder (40mm) gun, 93 rounds of armor-piercing capable of penetrating 57mm of armor sloped at 30 degrees at 500m

Secondary Armament: 7.92mm Besa MG with 2,925 rounds

Front Armor: 78mm
Side Armor: 65-70mm
Rear Armor: 55mm
Turret Armor: 75mm
Roof/Deck Armor: 20mm

Crew: 4 (Commander, Gunner, Loader, Driver)

References:

-**Matilda Infantry Tanks 1938-1945:** David Fletcher (Osprey Publishing)
 -**The Matilda:** Bryan Perrett
 -**British Armored Fighting Vehicles:** George Bradford

-**Wikipedia**
 -**Tank Encyclopedia**

-**Colonel Caunter's Scheme:** Mike Starmer (Military Modelling, Vol .40 No.2)

Although some British tanks such as the early war Matilda II, mid war Churchill, and late war cruisers saw some success most British wartime tanks were barely adequate or inferior. For most of the war, Britain relied to a great extent on American tanks. Not until 1944 did British tank development mature with vehicles such as the Cromwell. The Centurion would have been a game-changer, but it belongs to the postwar era.

One of the more successful British tanks was the A12 Infantry Tank, Mk II, commonly called the "Matilda II" or "Matilda Senior". We tend to judge WWII tanks by what came later, and by late war standards the Matilda was certainly obsolete, but at the start of the war it was a fairly good tank with heavy armor and mounting the relatively effective 2pdr anti-tank gun as its main armament. It certainly gave the German forces a scare at Arras in 1940, arguably slowing their advance and enabling the evacuation of Dunkirk. Early in the North African campaign, it earned the title "Queen of the Desert" as Italian forces had no effective answer for it. However, its small turret and turret ring did not allow for it to be up-gunned, its slow speed regulated it to an infantry support role (in fairness, what it was designed to do), and its heavy armor soon became vulnerable to more powerful tank and anti-tank guns. In North Africa and on the Western Front, it was largely replaced by more capable tanks in 1942. However, it soldiered on in the Pacific becoming the only British tank to remain in frontline service throughout the war. The tank was also provided to the Soviets through Lend Lease, but not surprisingly it was unpopular in Soviet service due to its slow speed and complexity.

At the start of WWII, the British fielded three distinct types of tank: light tanks for reconnaissance, heavily armored infantry tanks to support the attack, and fast cruiser tanks to exploit the breakthrough. The Matilda was an "I" or "Infantry" tank. Due to budgetary restraints, the first infantry tank adopted for service, was the small, heavily armored, and machinegun armed A11, commonly called the Matilda. Design work was initiated on a heavier infantry tank, and as war became imminent, production was curtailed on the A11, and the A12, or Matilda II, was ordered. Production started just prior to the outbreak of war and continued into 1943 with 2,987 being built. The vehicle was complex to produce requiring highly-skilled workers.

As the vehicle was designed as an infantry support tank, armor and not speed was of critical importance. Although very slow – about 15 mph max on paved roads – Matilda's armor at up to 78mm thick was the heaviest of its era. A three-man turret mounted a QF 2 pounder (40mm) anti-tank gun and a coaxial machinegun. Although the gun was good for its day, it lacked an effective high explosive (HE) shell. While there was an HE shell for the 2pdr, its small bursting charge made it relatively ineffective. It also did not fit in the ammunition racks inside the tank. Two smoke grenade launchers were carried on the right side of the turret.

The tank was powered by a pair of diesel engines linked to a single shaft. Although time-consuming to maintain it did provide some redundancy – if one engine failed, the tank could limp on the other (if the top speed with both engines was 15mph, the speed on one must have been very slow indeed). The slow speed was not helped by the troublesome suspension. The wheels did not have rubber tires and there were no return rollers, only metal skids. Given the vehicle's slow speed, this was not an issue, but it did make the tank quite noisy.

The tank was produced in several variants:

- Infantry Tank Mk II (Matilda II): Initial production with a Vickers MG as the coaxial armament
- Infantry Tank Mk II.A (Matilda II Mk II): The Vickers MG was replaced with a Besa MG
- Infantry Tank Mk II.A* (Matilda II Mk III): The Leyland diesel engines replaced the earlier AEC engines
- Infantry Tank Mk II (Matilda Mk IV): Improved Leyland engines and the turret lamp was removed
- Infantry Tank K II (Matilda Mk V): Improved gearbox and air servo

Other variants included a close-support version mounting a 3-inch howitzer, vehicles fitted with mine flails, and a Canal Defense Light version mounting a vertically-oriented searchlight designed to disorientate and confuse the enemy at night.



Matilda II "Phantom" of the 42nd Royal Tank Regiment in the Caunter Camouflage pattern. This is one of the marking options included in the Tamiya kit. Note the vehicle does not appear to mount the rear auxiliary fuel tank. The photo was taken in November 1941. All Matilda photos in this section are from the Imperial War Museum.



Matilda II "Defiance" of the 32nd Tank Brigade. This is another marking option included in the Tamiya kit. Like "Phantom" above, this vehicle also does not appear to mount the auxiliary fuel tank at the rear and is also in the Caunter camouflage. This photo was also taken in late 1941.

Panzerkampfwagen II: Sd. Kfz. 121

The Panzer II was meant as no more than a stopgap between the puny Panzer I and more advanced Panzer III and IV. Still, the Panzer II remained Germany's primary light tank throughout the war. It remained in production until 1943, as no satisfactory replacement was developed. The Panzer II was basically an enlarged Panzer I fitted with a 20mm and a 7.92mm MG 34 machinegun mounted coaxially. The vehicle was designed before the Spanish Civil showed the need for armor sufficient to stop armor piercing shells. Its armor only protected against bullets and fragments.

Increases in armor and armament were limited due to the corresponding loss of both speed and range. A radio gave it an advantage over most foreign opponents, but the three-man crew meant that the commander had to do double duty as the main gunner.

Main production began in late 1937. The initial Ausf A was soon succeeded by the B with only minor changes. The Ausf C was the primary "early production" variant. These earlier tanks are easily distinguished from their predecessors by their rounded front hull. Experience in Poland and France demonstrated the vehicles' vulnerability, and armor was upgraded with a 20mm applique applied to the front of the turret, superstructure, and glacis. Also, due to commanders' complaints, a cupola with eight periscopes was provided as a kit. All these improvements were fitted to the tanks the Germans took with them to Africa and into Russia. Entering production in mid-1941, the Ausf F incorporated thicker armor on the glacis and gun mantlet. The commander's cupola was fitted as standard equipment. There were also differences in the front superstructure and engine deck.

Other variants include the Ausf D and E which used a different suspension. Only a few were produced, and the chassis were converted into flamethrower tanks. The Ausf G, H, J, and M were "heavy" reconnaissance tanks. Only the G and J (essentially a completely new tank) saw limited production. The ultimate Panzer II was the Ausf L "Luchs" which had a more powerful engine, heavier armor, interleaved road wheels, and new tracks. It had higher speed, better performance, and longer range. A 4th crew member allowed the commander to focus on his own tasks.

In addition to the tank, the Panzer II chassis served as the basis for many other vehicles including the Marder II, Wespe, Flamingo, and Bison.

It performed well in Poland, but was obsolescent by the French Campaign. Still, superior doctrine, crews, tactics, and communications proved decisive. The tank also went with the Africa Corps and took part in the invasion of Russia. However by 1942 most survivors were removed from frontline service. By the late war, only the Luchs was active in limited numbers alongside even more limited numbers of survivors of the earlier campaigns. By March of 1945, only 145 Panzer IIs were still in active service.



A Panzer II Ausf C in Africa. It has been tropicalized, has the commander's cupola retrofitted, and feature supplemental armor. I have not found a photo or other evidence of Panzer IIs in North Africa without these modifications. By the end of 1941 or early 1942, the Ausf F was being sent to North Africa. Several served through the Tunisian Campaign.

Panzer II Ausf C:

Length: 15 ft 9 in
Width: 7 ft 3 in
Height: 6 ft 6 in
Combat Weight: 8.8 tons

Speed: 25 mph
Fuel Capacity: 140 Liters
Range: 300-320 km road/180-200 km cross country

Powerplant: Maybach 6 cylinder petrol engine (138 hp)
Drive: Front Sprocket
Suspension: Leaf Spring

Main Armament: 20mm KwK 30 or 38 (180 rounds)
Secondary Armament: 7.92mm MG (2280 rounds)
Armor: 5-15mm (not including 20mm applique armor)

Crew: 3 (Commander/gunner, loader, driver)

References:

-Panzer Tracts 2-1 and 2-3: Jentz and Doyle
-German Light Panzers: Bryon Perrett (Osprey New Vanguard)
-Panzerkampfwagen I & II: German Light Tanks 1939-45: Eric Grove
-German Early War Armored Fighting Vehicles: George Bradford

-Wikipedia
-Tank Encyclopedia

The Kits

Three kits were used to create this diorama: Tamiya's 1/48 scale Matilda Mk III/IV (kit number 32572) and Panzerkampfwagen III Ausf A/B/C (kit number 32570) along with Bandai's old Panzer II. The Tamiya kits are the only ones necessary—the Matilda was built largely stock and any changes and alternations needed on the Panzer II are well within the skills of most modelers. However, the legendary Mr Bruce Culver was kind enough to supply the old Bandai kit, and it provided many of the parts needed—most notably the basic interior and some of the exterior hull differences between the standard Ausf A/B/C and tropical version.

Both of the Tamiya releases are typical of their 1/48th scale kits. Level of detail ranges from good to excellent. Engineering and fit are first rate. Clean-up of parts is fairly easy and most ejector pin marks will not be visible after assembly. Tracks are link and length with good detail and pre-molded sag where appropriate. No interiors are present. Each includes a commander figure. Instructions are complete, detailed, and easy to follow.

These kits are a departure in some ways from their earlier quarter scale offerings. Gone are the die-cast metal hull tubs, these now being built-up from plastic parts. Metal ingots are provided to add a little weight. While these do that well, it isn't really necessary, and I would much rather see a bit of photo-etch included!



The Kits



This photo shows the molding of the Matilda road wheels.

The Matilda includes 120 plastic parts on five sprues. Rather than a bunch of separate tiny wheels, Tamiya has molded the wheels on each side as a single casting—and they’ve done this without any sacrifice of detail! This simplifies the build and almost guarantees perfect road wheel alignment. Most of the fittings and tools are molded as separate parts. Most hatches—with the exception of the commander’s hatch—are

molded shut. A fairly nice partial commander figure is included to fit in the hatch. Although some parts may be a bit simplified, detail is very good overall. Three marking options are provided—two Desert Matildas in “Caunter” camouflage (although the color callouts are incorrect), and a tank in England. Overall, this a very nice kit—probably one of the nicest Tamiya quarter scale kits I’ve built.

The Tamiya Panzer II represents an Ausf A/B/C as it would have been during the French Campaign and includes three marking options from this campaign. Based on the Ausf you are modeling, the kit provides a choice of parts. It includes the supplemental armor on the nose, glacis, and turret. This makes it easier to modify the vehicle for Africa—all that is needed is the cupola and some changes in the rear deck and stowage.

Back in the 1970s, I built many of the little Bandai kits—including this one. I loved them! Back then they were state-of-the-art: the Bee’s Knees, the Cat’s Meow, and the Caterpillar’s Spats! The small size proved popular—although it could never really compete with the more bloated 1/35th scale. They models even had interiors—unheard of in those days! I have very fond, rose-colored memories of the Bandai kits. Looking at the kits today and comparing them with modern offerings somewhat tarnishes that illusion. While they are decent, and can be built into nice models with a little love and a lot of work, the details are crude and heavy, dimensions and shapes are often wrong, decals are poor and often incorrect, and the poorly-detailed rubber band tracks are best replaced. Thankfully, many companies (such as Gaso.Line) make replacement tracks in resin. All of the above complaints—and complements—hold true for the little Bandai Panzer II.

The good news is that the Bandai kit represents an Ausf F/G while the Tamiya kit is of the Ausf A/B/C. Although the old Bandai kit is now fairly rare, it is still an option and the two kits together provide the modeler with many choices when making the Panzer II. The Bandai upper hull fits almost perfectly to the Tamiya lower hull. Thus if one wanted, they could combine the superior Tamiya wheels and tracks with the Bandai kit to created a better Ausf F model. One could also follow the same path I chose—use parts from the Bandai kit to model an Ausf A/B/C fitted with the cupola and stowage boxes for use in Africa or Russia. One could even use parts from the Bandai kit to help convert the Tamiya model to an Ausf F! And, of course, if you want an interior in your Tamiya kit, the Bandai kit provides a good starting point, although Bandai’s interior is far from complete. The Bandai turret has some incorrect shapes, but with proper modification the Tamiya unit can be used to help correct, detail, or replace the Bandai one. Whatever path you chose with regards to modifying, converting, or correcting either kit, I recommend having a good set of plans on-hand for reference. I used the excellent plans provided in the Panzer Tracks books as well as Bradford’s plans. Photos are another vital reference and many can be found with a quick Google search. This is especially true of Afrika Korps (DAK) vehicles where so many non-standard modifications and fittings were often made.

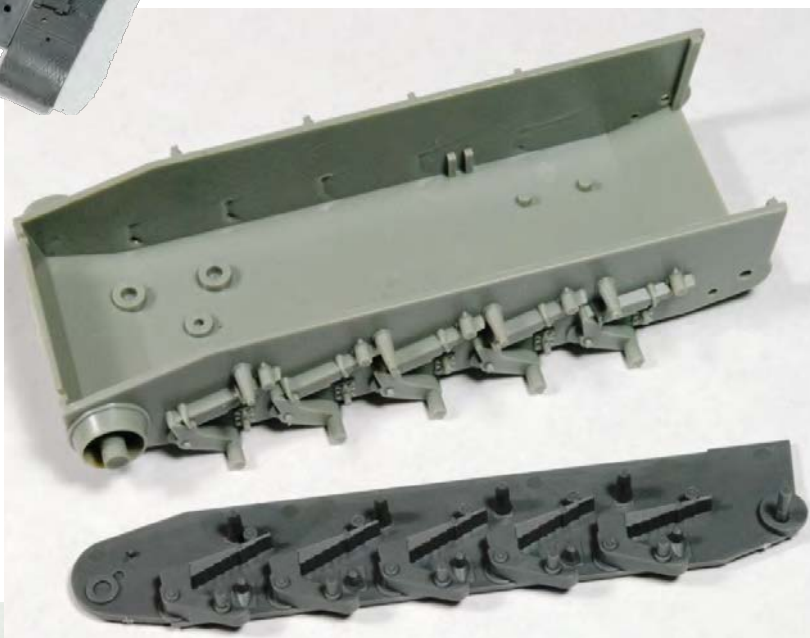
For those interested in provided even more detail to any of these kits, the aftermarket provides various detail and accessory sets.





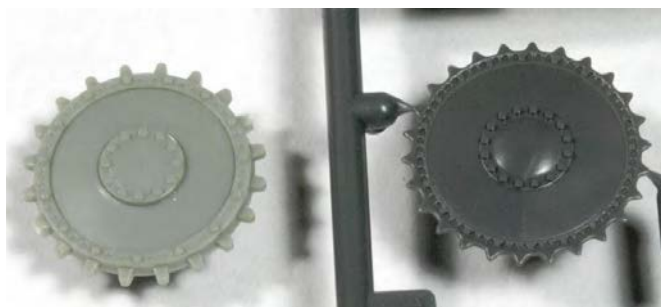
Let's compare the Tamiya (dark grey) and Bandai Panzer IIs. At left we see the main upper hull piece from each kit. Although they are engineering differently (and represent different models of the tank), their similarities are apparent. The fender tread plate pattern on both kits are correct, but the Bandai is far too heavy. The Tamiya pattern is rendered very finely, but the tools are molded on, making alterations more difficult. Dimensionally, the Tamiya kit seems bang-on. The Bandai is very, very close, but the front of the hull superstructure, by my measurements, is about 1/16 inch too wide—certainly close enough for me (if I have to measure to find an error, it's close enough as far as I am concerned).

The lower hulls are engineered completely differently. Bandai provides a hull tub, while the Tamiya lower hull is made of separate parts. Size of the built hulls are identical. Both feature the suspension components molded in place. As expected, detail is a bit heavier on the Bandai kit. The Tamiya hull sides have some rather unfortunate ejector pin marks to remove, but most will be hidden by the wheels. The Bandai kit is also designed to have an interior, and the various alignment/placement pins, holes, and pegs are molded into the hull. Measurements taken from these can be transferred to the Tamiya hull after all casting flaws and other superfluous fittings have been removed (this is not a knock on the Tamiya kit; after all it wasn't designed to have an interior fitted).



Moving to the turret, the differences are more pronounced. Part of this is the different Ausfs they represent. Being the later model, the Bandai turret features the cupola and the thicker front armor. However, the Bandai turret is noticeably too wide at the front, causing many of the other angles to be incorrect as well. It still looks like a Panzer II turret, but the error is readily apparent to those familiar with the tank. Otherwise, parts breakdown is similar.

In many cases, parts are interchangeable from kit to kit. Here we see the Bandai upper hull sitting loosely on the Tamiya lower hull. The fit is nearly as good as the Tamiya piece—although due to different engineering, some modifications and slight gap filling would be needed.



As expected from a 40-year old kit, most details on the Bandai pieces are somewhat heavier and cruder than the modern Tamiya counterparts. Still, with some tender loving care, the Bandai kit is certainly still viable.



Perhaps the biggest issue with the Bandai kit are the tracks. These photos compare the rubber band Bandai tracks with the link-and-length Tamiya tracks. As with other areas, detail on the Bandai offering is much cruder and heavier than the very-finely detailed and molded Tamiya tracks (that even have sag molded in to the top run). Still, the Bandai tracks are not horrible... Perhaps the biggest problem would be to get the thick, stiff rubber band tracks to sit realistically on the wheels. Gaso.Line offers resin Panzer II replacement tracks. Note that these are sized for the Bandai kit and will not fit on the Tamiya wheels. A quick test also reveals that the Tamiya track will not fit on the Bandai wheels. Thus, if you wish to upgrade your Bandai kit with the Tamiya tracks, your best bet is to use the entire Tamiya lower hull. The bottom line—although the Tamiya kit is superior in every regard, you can still build a presentable model straight from the Bandai box.

Construction and Detailing



The vehicles in sub-assemblies ready for painting. Although painting and weathering must be consistent between the two vehicles, this kit was built as best suits the kit and the project goals. The Matilda was a rather straight-forward straight-from-the-box build. A fuel can rack replaced the auxiliary fuel tanks, periscopes were added, and some additional detail added to the rolled tarps stowed on the turret-mounted rack. The vehicle was painted in four sub-assemblies: tank, turret, fuel can rack, and tarp rack. By contrast, the Panzer II was a very complex build, converting a French Campaign Ausf B. to a later vehicle modified for use in the desert with additional stowage, a commander's cupola, and tropical fittings. As a disabled vehicle with all hatches open, it also includes a complete interior. This kit was a kit-bash of the Tamiya kit and the old Bandai offering with a great deal of scratch-building and detailing thrown in. The only parts missing from this photo are the tow cable clevises on the Matilda and the vehicle antennas.

Although the Matilda is the main “star” of our “show”, story of making the scene is largely about the little Panzer II. The Matilda was built mostly stock with only one main alteration—the swap of the auxiliary fuel tank for a scratch-built fuel can rack. However, the forlorn panzer is a “kit-bash” consisting primarily of the superior Tamiya Ausf A/B/C kit supplemented with parts from the inferior Bandai Ausf F/G kit with a good bit of detailing and scratch-building thrown in for good measure. Additional work was also necessary to correct my own mistakes and blunders. All this was done to create an Ausf B as seen in North Africa incorporating many of the features that became standard on later Ausf F.

In addition to the exterior changes, many of the hatches on the Panzer are open, allowing a view into the guts of the tank. The basic interior was provided courtesy of the Bandai kit. However, this benefited from a large amount of extra detailing. This was done using a process called “gizmology”. By this I simply mean that rather than exactly recreate every little piece and detail inside the tank, only enough of the approximate forms were added and detailed—using bits from the scrap box and pieces of styrene—to give the general impression of a complete interior. Areas immediately inside the hatches are fairly detailed, but the farther away we move, the more the detail is only suggested with basic shapes and forms. The suggested detail is enough to create a “smoke and mirrors” illusion where the viewer, looking through the tiny hatches, will see what they expect to be there. This lack of exact detail is further reinforced by painting areas immediately inside the open hatches in lighter colors and the rest of the interior in deeper shadow. Again, this is what we expect—when out in the bright sunlight (such as a desert day with the sun glaring off the light-colored ground) and look in a shadow area, our eyes do not quickly adjust and we see mostly dark.

So let's now turn our attention to how these little models were built and detailed. We'll start with the Panzer II then turn our attention to the Matilda.

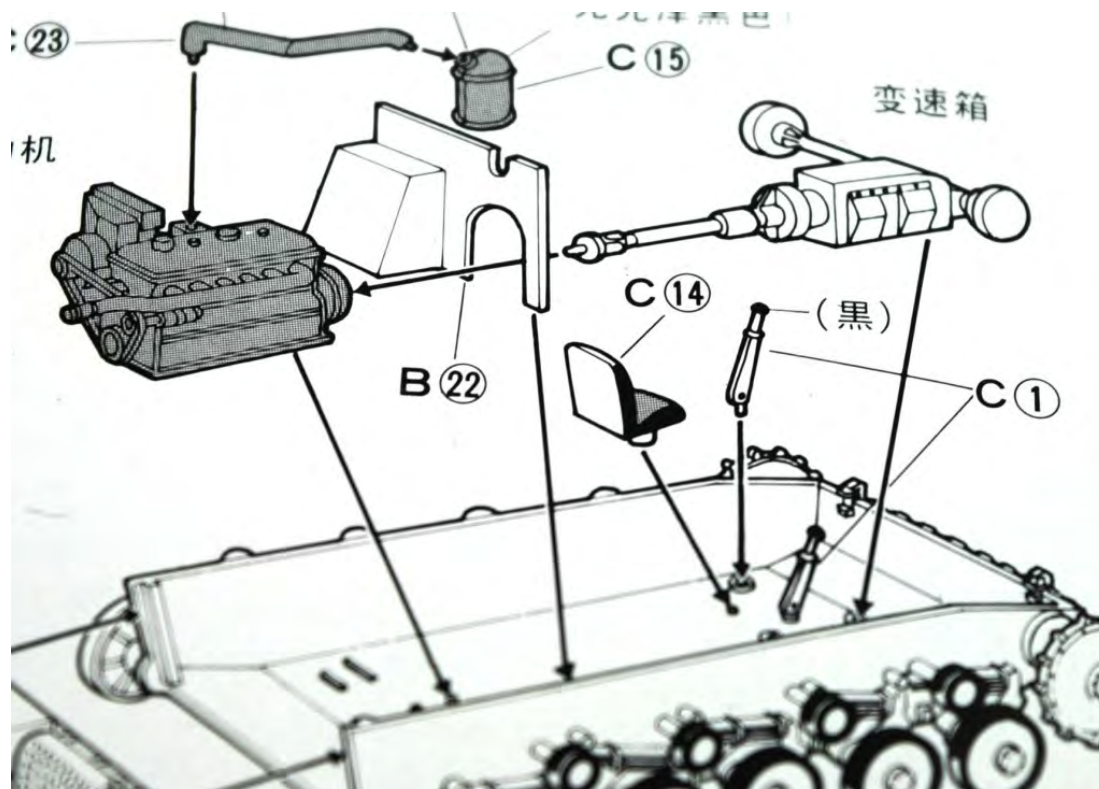


THE REAL THING

These photos show Panzer IIs (they may be the same vehicle) of the 15th Panzer Division in late 1941. These photos were used as the model for my build. Several things are apparent. Stowage is non-standard, but based on the vehicles in the background on the top photo, was the same for the tanks in this sub-unit. A Jerry can rack is placed on the left rear fender and the tools normally here—jack and fire extinguisher—are repositioned to the front right fender. A large stowage box has been added beside the dual stowage box on the right fender. It appears that another small stowage box is placed on the right side of the glacis above a spare track holder. Note this is a different configuration than the otherwise similar vehicle shown on page 6. The early arriving 5th Light Division (later 21 Panzer Division) deployed to Africa quickly with its vehicles still in European dark grey. Photos show those vehicles were often crudely painting later or camouflaged with mud. In contrast, It appears these vehicles belonging to 15th Panzer, which deployed later in 1941, are fully painted in the appropriate tropical colors of RAL 8000 Yellow Brown with a soft-edged camouflage pattern of RAL 7008 randomly applied to one third of the vehicle. For what it's worth, I've found two color plates based on the bottom photo. One of them shows the vehicle in plain yellow brown while the other shows the two-tone camouflage. The camouflage was so low-contrast it is usually hard to tell from photos if the vehicle carries it or not! So if you're building this vehicle—take your pick!



We start our Panzer II kit-bash with the lower hull and the interior contained therein. Above and top left: The Tamiya kit is not designed for an interior. It is made only to house weights. Therefore, those unneeded fittings must be first removed. All the various holes, hollows, ejector pin marks, etc. must be removed or filled with epoxy putty. Then the hull tub can be assembled. It is now ready to receive an interior.

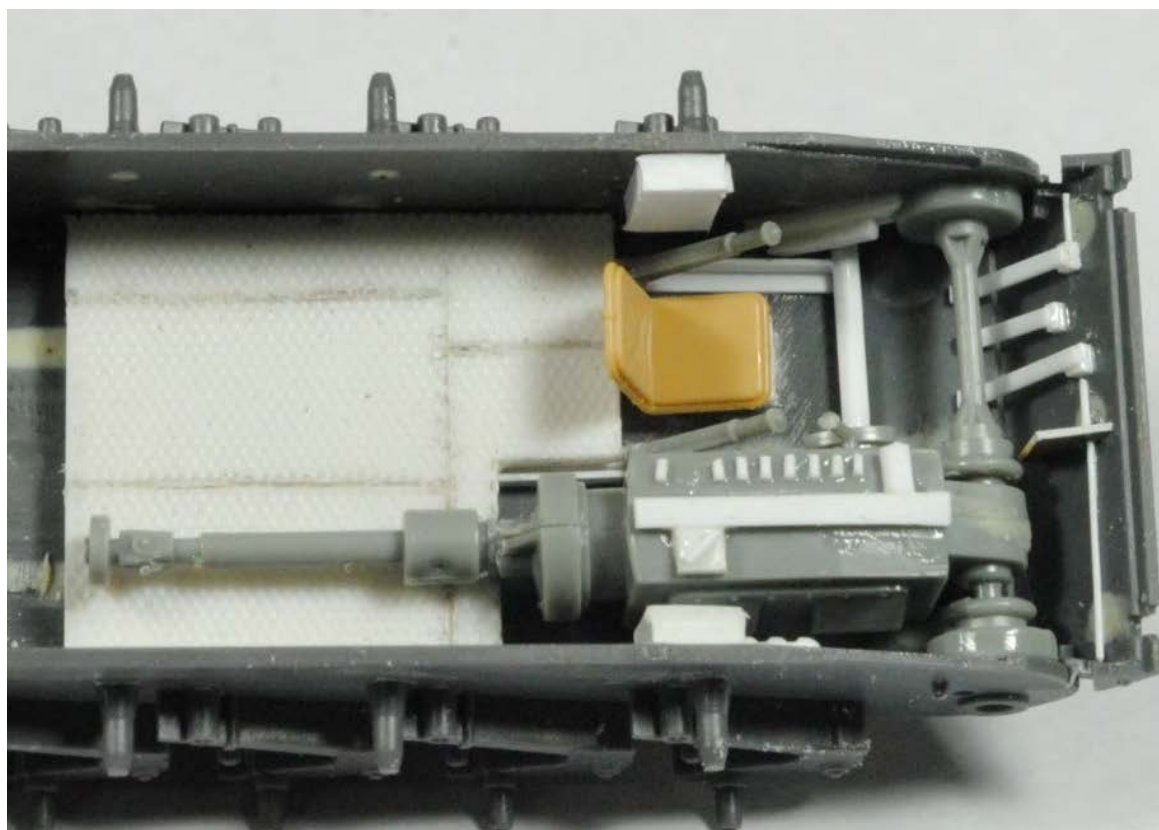


Bottom Left: This photo of the Bandai instruction sheet shows the extent of the hull interior provided in this kit. This includes a fairly well-detailed engine, but the transmission, drivetrain, and driver's station is only rudimentary. No other detail is provided. In fairness, these are the primary areas that would be visible through the engine access and driver's glacis hatches. Still, as I have all hatches open, I wanted to have a more complete interior—detailed in these areas and at least suggested in other areas.

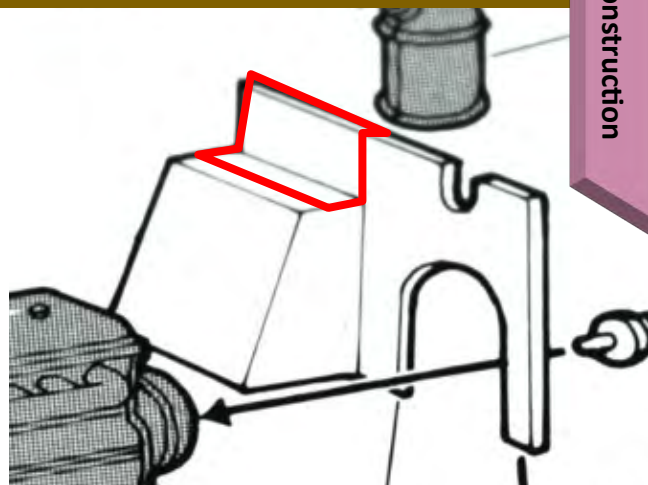
Matilda II & Panzer II

The Bandai engine and transmission were assembled per the kit instructions.

Some additional details and bolt heads were added to the top of the transmission using bits of Evergreen and/or Plastruct Styrene shapes.



The driver's station, which be visible through the open hatch, was detailed with a Tamiya seat (a spare from all the Sd.Kfz 251s I've built), pedals, and various other fittings. All of these were made from styrene shapes. A raised floor in the center of the hull was cut from a piece of Plastruct tread plate that closely matches the pattern on the fenders. The individual panels were scribed into the sheet.



The engine and firewall were installed next, again, taking measurements from the Bandai hull for location. Test-fitting with the Tamiya upper hull indicated the area shown above outlined in red needed to be cut away.

The fuel tank mounted inside the vehicle on the right side of the hull was fashioned from sheet plastic. The fuel fill spouts are plastic tube. Test-fitting was done with the upper hull to ensure the spouts lined-up properly with the filler caps on the upper hull (indicated by the arrows).

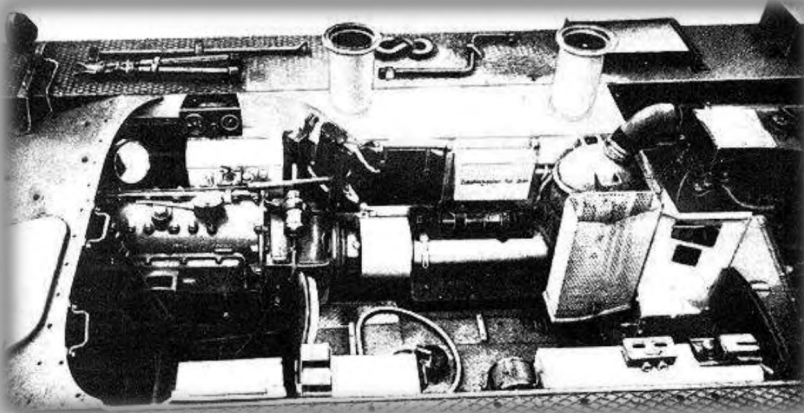
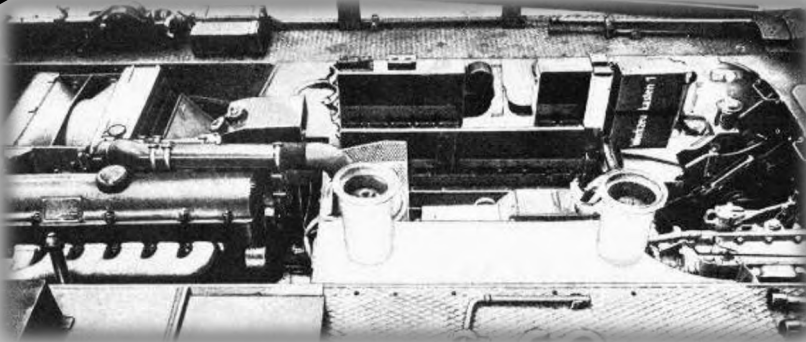




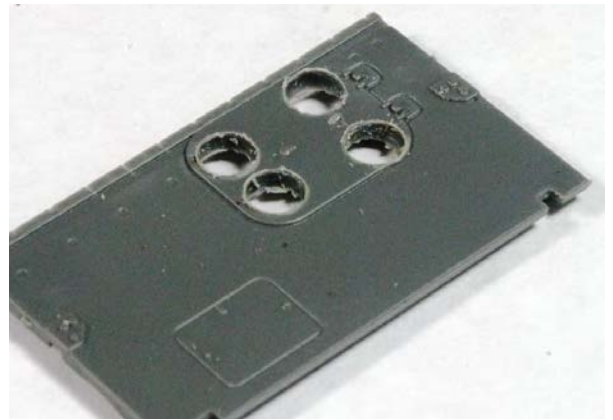
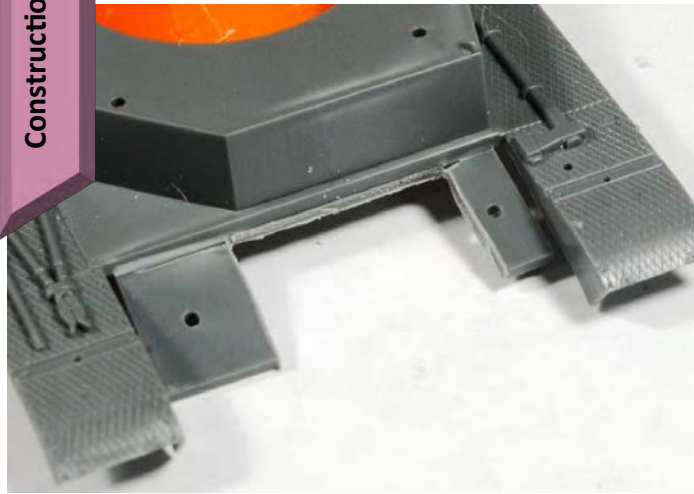
The lower hull was fitted-out using a few Tamiya pieces from the scrap box including another seat (for the radio operator), and some ammunition stowage. These parts are from the Flakvierling kit with the magazines cut down from 20 round to 10 round boxes. Empty racks in the sponson (included in the upper hull) are also from that kit. These parts are readily identifiable as they are molded in yellow plastic. Other details and shapes are Evergreen and/or Plastruct rod, bar, strip, and sheet.

THE REAL THING

Photos from the manual on the Panzer II showing the same areas. While my interior is not completely detailed, I believe the basic shapes and forms are correct, and what little will be visible through the hatches will look convincing enough.



Moving to the upper hull, the first step is to do the heavy work. This includes replacing a portion of the rear deck with the tropicalized version which featured improved air flow. The respective portion of the decks were simply cut from the two kits and the Bandai piece grafted onto the Tamiya hull. While some trimming and sanding was necessary, only a small amount of putty work (where the deck joins the fighting compartment superstructure) was required. The thick Bandai part had to be thinned at the rear and left edge to fit flush against the Tamiya lower hull. Moral: Always conduct lots of test-fittings when doing conversions.



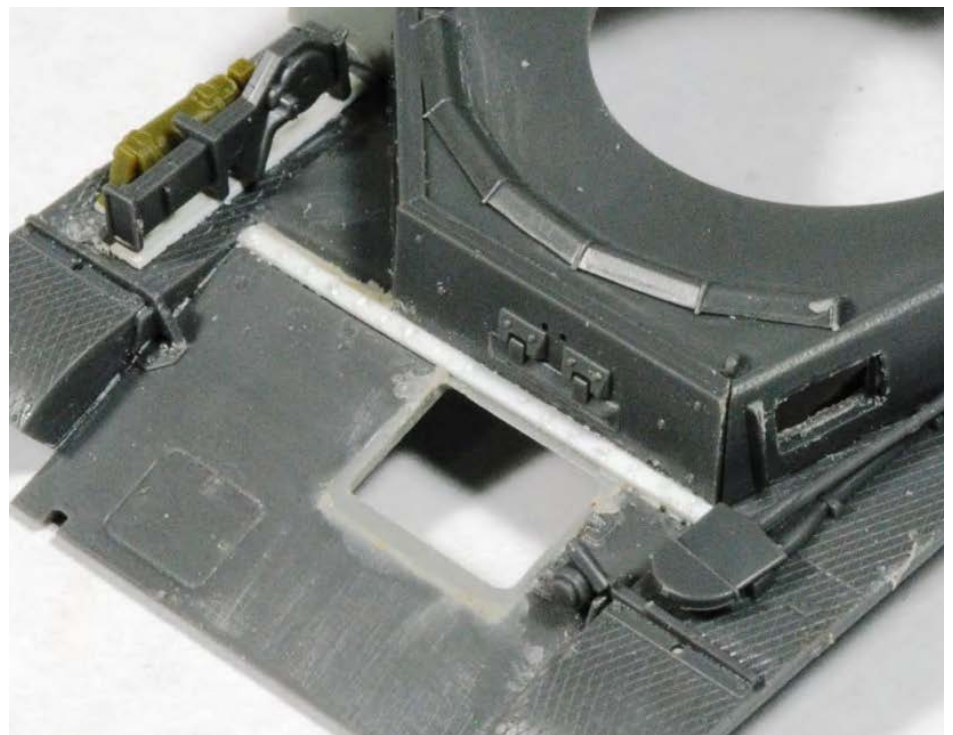
Above left: I wanted to have the driver's hatch open, so I started by removing a portion of the glacis mounting flange on the front of the Tamiya hull, leaving only enough to securely mount the Tamiya glacis. In theory, opening a hatch is easy (above). Drill some holes to mark corners, and then cut away the hatch and file the edges smooth. However, I messed-up (we all make mistakes) and cut the hatch far too large. The opening was also not square. I also damaged the bolted strip running along the top of the glacis. To repair my goof (left), I simply cut out the hatch opening and surrounding plastic from the Bandai kit, grafted it into an enlarged hole in the Tamiya piece, and filled the resultant gaps with epoxy putty. The damaged strip was replaced with a styrene strip. Individual bolt heads are very tiny salami-sliced pieces of stretched plastic rod.

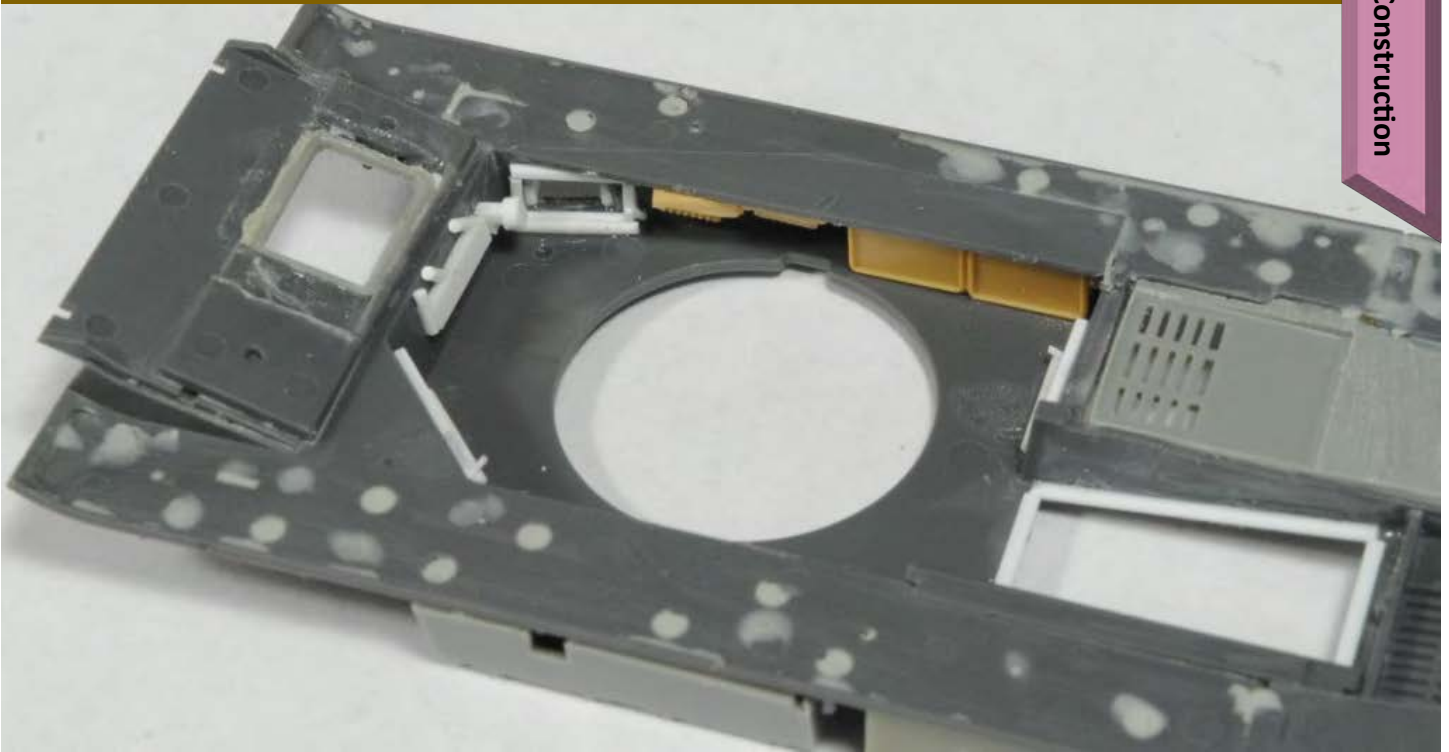


The bolt heads were coated with a layer of Tamiya extra-thin cement to slightly melt them, rounding them off.

This photo shows the replaced hatch opening after it was puttied and sanded. It also shows the front left side driver's vision port cut open (using the aforementioned drill and cut method). Some clean-up with a file remains to be done.

Finally, the molded-on tools on the front right fender were carefully sliced off with a new, sharp hobby knife blade. Tool mounting brackets are thin plastic strip. The jack was repositioned here to match my reference photos. I replaced with kit fire extinguisher with an AFV Club part. I did this simply because it is larger than the kit part and therefore better covers up where the tools were cut away.





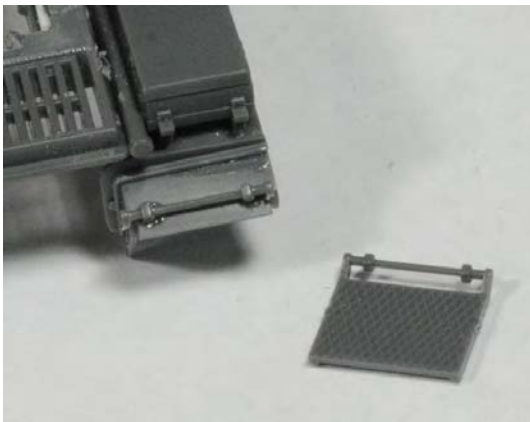
The engine access hatches on the Tamiya kit were cut away using a hobby knife. These are deeply scribed into the plastic hull and are quite simple to cut off. Since I am replacing the hatches with Bandai pieces, I did not have to try to save the various Tamiya parts, making the operations easier. A lip inside the open hatch was added with very thin and narrow styrene strip. Next, various ejector pin marks, pegs, and holes on the underside of the fenders were filled with epoxy putty. These will not be very visible after assembly, but it will be possible, with effort, to see up underneath the fenders. Hence, these molding imperfections were filled. Although less likely to be visible than lower hull details, I also added some detail to the upper hull, including rudimentary detail around the vision ports made from styrene bits, and Tamiya radios and ammo storage from the spare parts box.



I chose to model two of the hull vision ports open—the one shown here by the driver and the one on the rear for the radio operator. Note that these do not open straight outward, but rather slide up and out. As most interior detail will be obscured, rudimentary hinges (wedges of plastic) were glued inside the openings, and the visors glued into the proper positions.



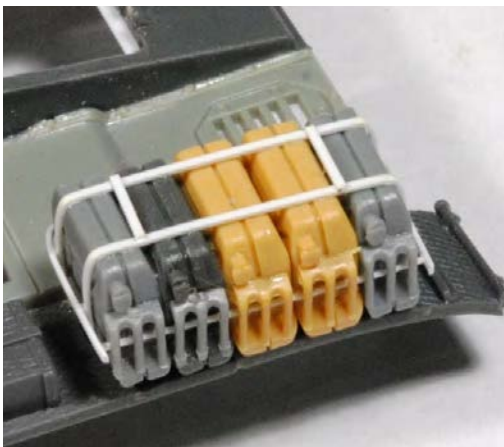
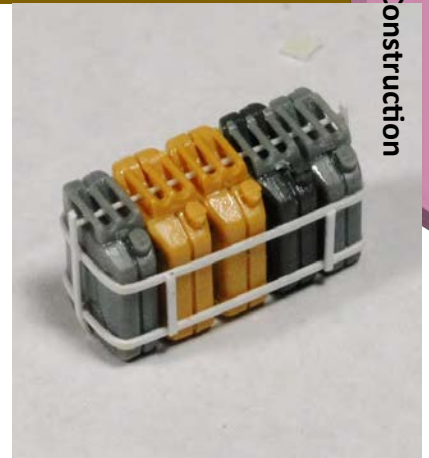
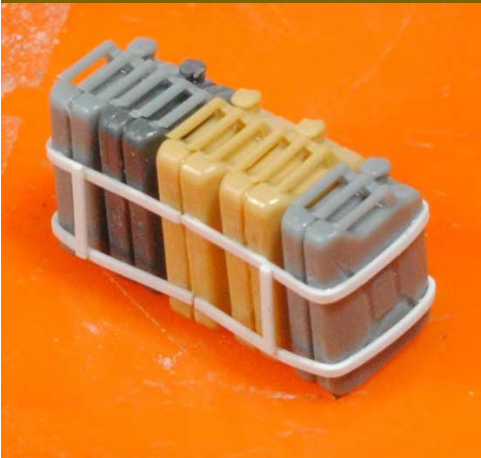
The vehicles I am using as my guides feature the double stowage bin on the right side common on all modified early Ausfs and standard on the Ausf F. This part came from the Bandai kit and fit without additional alteration. The photos on page 12 also show another large stowage box behind this one. A resin piece from the scrap box was found that nicely fit the bill. I'm not sure, but I believe it is a Plus Models casting from their German Ammunition and Medical Containers set. Mounting brackets were made by salami slicing a piece of plastic "U" channel and then cutting the resultant slices in half. These were superglued to the bin and the bin superglued to the fender. As the part is resin, plastic model cement will not work, hence the superglue.



I chose to leave the rear fender extensions off the vehicle. However, the hinges were cut from the extensions and glued onto the fenders.

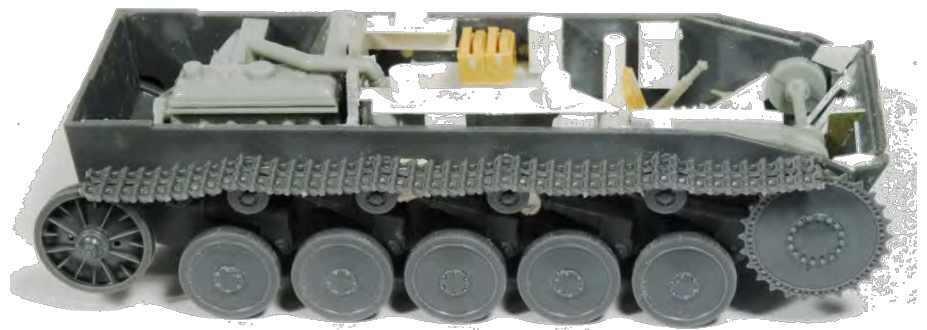
Below: Making the jerry can rack (or similar racks) is easiest if the rack is built around the contents. Using a flat, level piece of glass and a metal billet to ensure the cans were lined up properly, five cans were assembled and glued together. They are all Tamiya, they just come from various sets and kits, hence the different colors. Next, using two long pieces of Evergreen .25 x .5mm strip, the top of the rack was glued to the cans.





This was carefully bent and glued around the cans until the strips met each other on the bottom of the rack. Cross braces were added top and bottom with short pieces of the same strip. The round retaining rod was glued through the can handles and then the final piece of rack was glued in place. A final test-fit to the rear fender ensures everything lines up and fits properly. The rack will be left separate for painting.

Next, I assembled the tracks and wheels as one-piece units following my normal practice. Be VERY careful when removing the pieces from the sprues and assembling these tracks. The pieces are VERY tiny, VERY thin, and VERY fragile. Thus are VERY easy to damage and VERY easy to lose. They are directional, so make sure you place them on the vehicle facing the right way! Other than all that, they go together easily and fit like a charm! Start with the top run as the molded in sag makes exact placement of this piece on the return rollers easy. Then work your way around the drive sprocket, along the bottom and around the idler wheel.



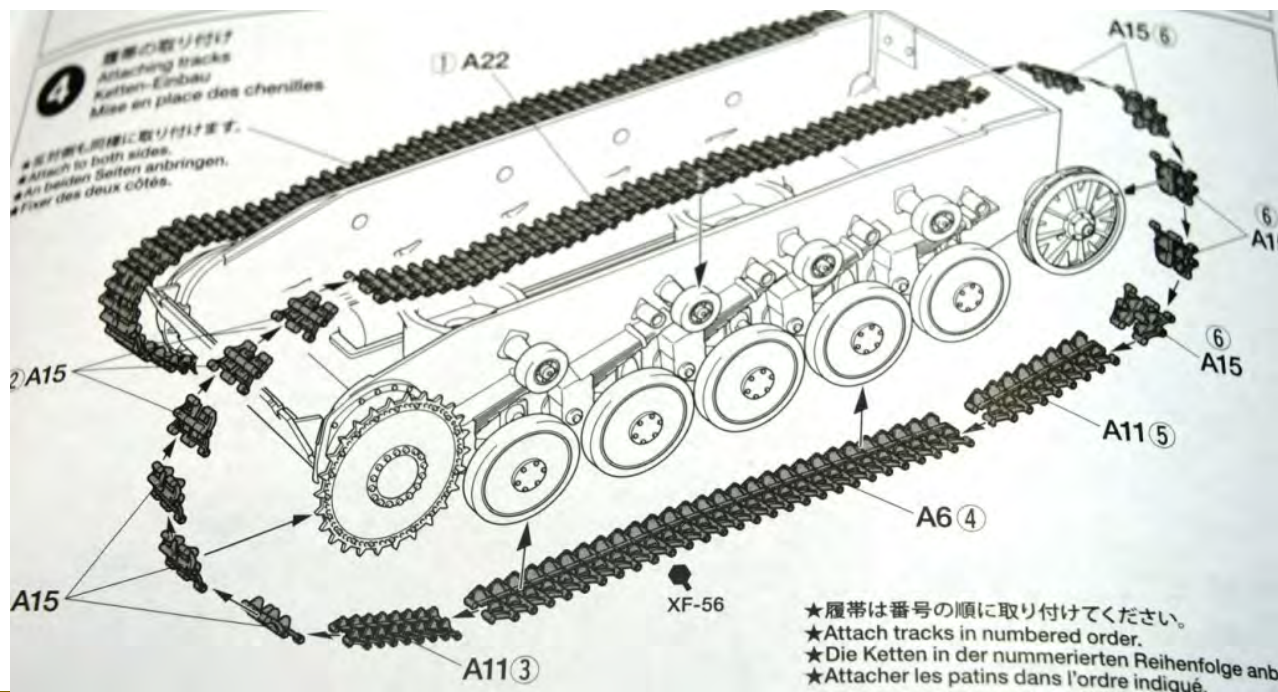
Matilda II & Panzer II

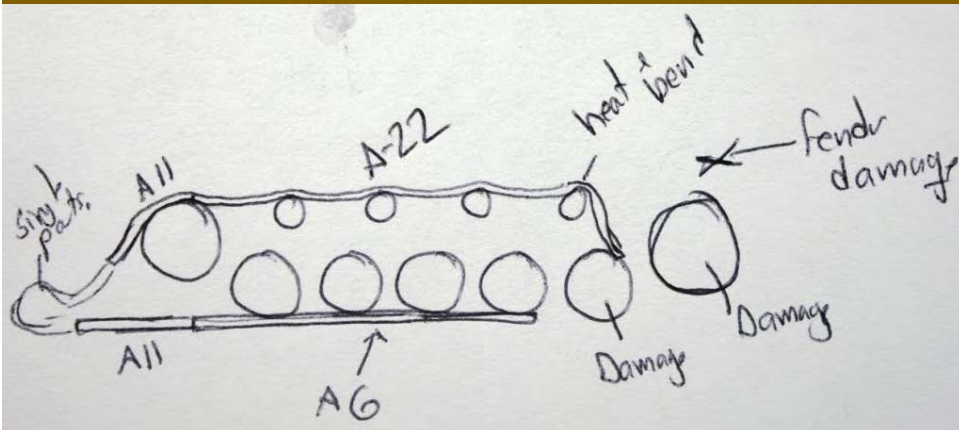


With the basic hull interior and one side of track complete, attention was turned to creating the damage which disabled the vehicle. I decided upon a track and wheels destroyed by a mine. Above: I started by damaging the fender above the blast. This was accomplished using the same methods we saw in the StuG III Ausf G build. I first thinned the fender using a cutting bit in my Dremel Motor Tool (at slow speed to avoid melting the plastic). Then the fender was bent and twisted as needed using pliers.

Left: The drive sprocket, already a thin part, received some bends and gouges, as did two of the road wheels. Damaged areas of rubber tire were carved away with a hobby knife.

Below: This track plan from the kit instructions shows the pieces available to work with in order to create damaged track. Such damage would be easy with individual link track—it could simply be realistically draped as needed. Rubber band track could also be shaped as required. With link and length, you must work with the pieces provided—although in this case the track is thin enough the runs can be bend somewhat without fear of breakage.

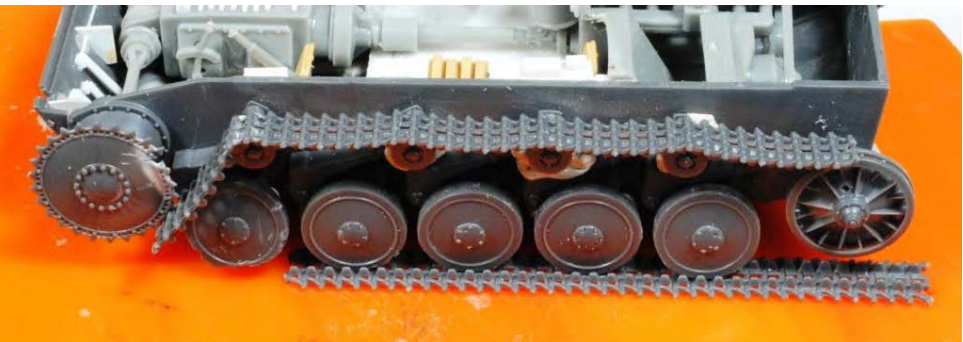




I started by making a rough plan showing where the various pieces would fit. Nothing fancy is needed—just a general guide.



The wheels were temporarily put in place using poster putty. The sprocket and first wheel were not lined up with the blast exactly as I assumed there would still be some rotation as the vehicle lurched to a halt. As they will not be glued in place until after painting, this can be adjusted as needed.



Track was then placed. I started by placing the long run on top (bend downward over the first return roller) and bottom. All the various other pieces were then glued together, allowed to begin to set, and then glued to the top and bottom runs and shaped as needed. Refer to my plan diagram above and the track diagram on the previous page to see where I used the various track pieces.

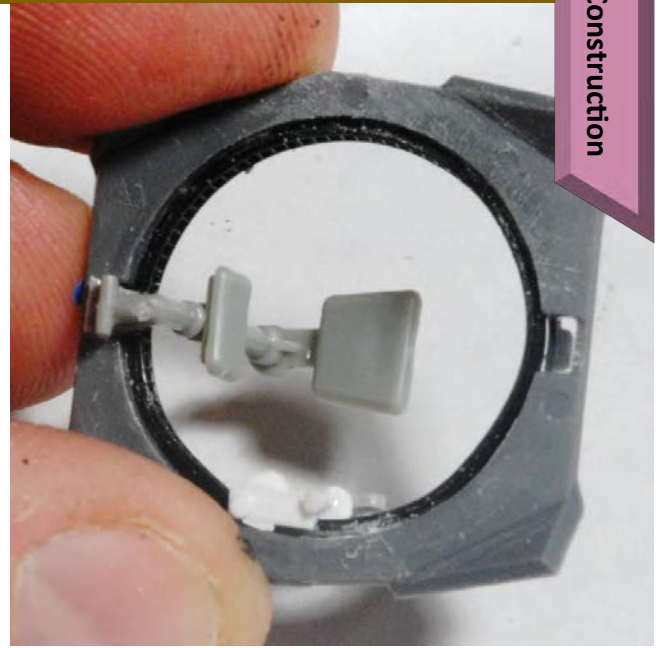
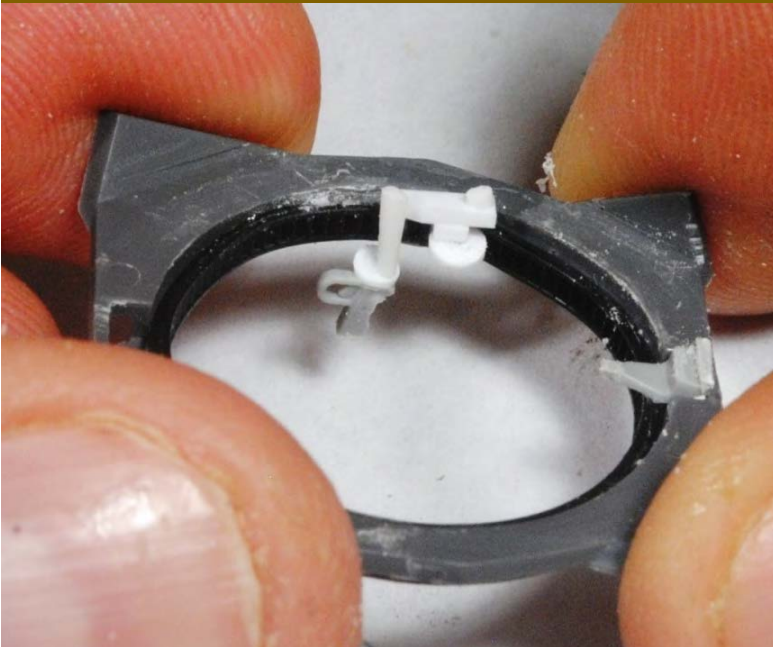




With this complete, all the major shapes, forms, and sub-assemblies on the lower hull are complete. All the various small, fiddley, and fragile parts will be left off until the top and bottom hull pieces are glued together which will not occur until after interior painting. The hull was set aside and attention turned to the turret.



The turret will be built in three sub-assemblies for interior painting: the turret base, turret shell, and gun mantlet. The first step is to removed the molded-on stand for the commander to rest upon. This is easily cut off the turret ring area smoothed. To created the geared turret ring, I used a simple cable tie (or zip tie as they are often called). The head was snipped off, it was cut to length, and superglued around the circumference of the interior turret ring. This tiny detail, which will be visible through the open hatch, will go a long toward enhancing the realistic appearance of the interior.

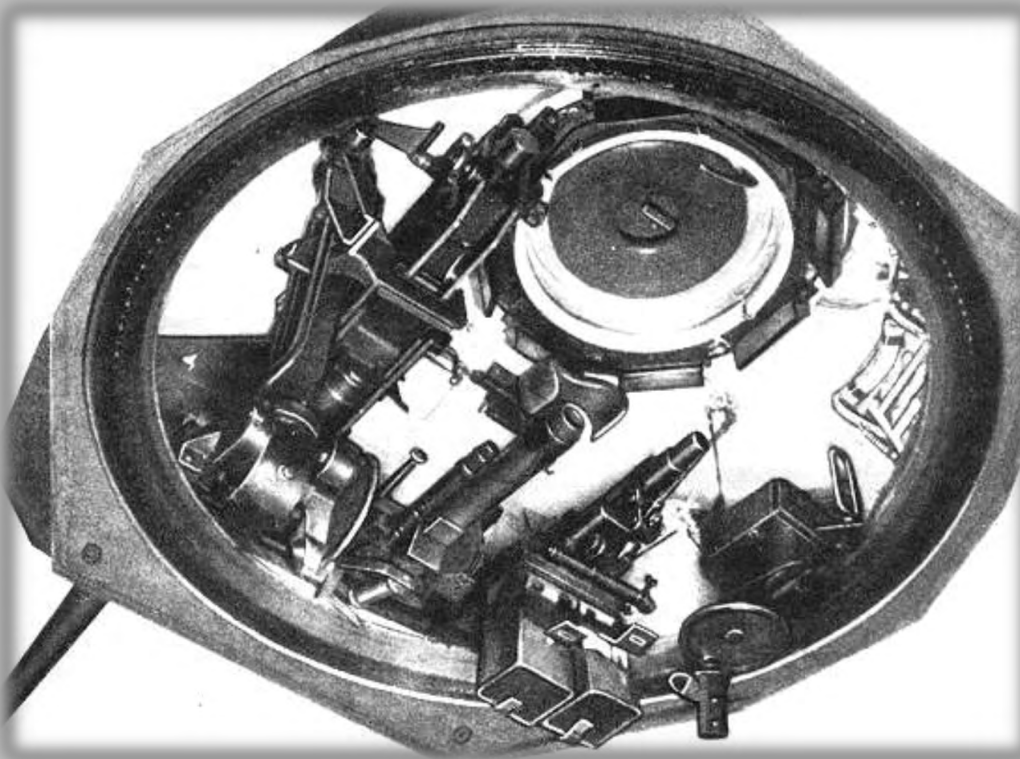


Turret traversing gear was fashioned from styrene bits using the same “gizmology” process used in the lower hull. The handgrip is an appropriate part from the spares box. The commander’s seat is straight from the Bandai kit. A small piece from the scrap box served to help mount the seat pole to the turret floor.

THE REAL THING

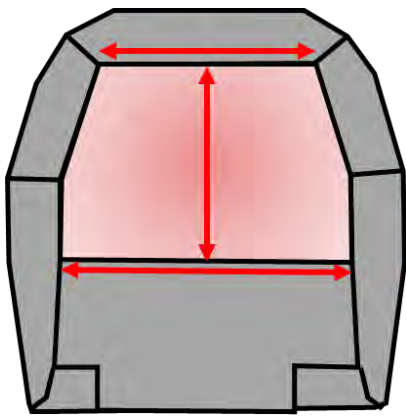
This photo shows the interior of the turret. It shows to good effect the turret ring with traversing gear, the guns and mounts, the gun sight (between the guns), and the inside of the cupola with the periscopes. Most of this detail will at least be able to be glimpsed through the open commander’s hatch. This photo does not show the commander’s seat which is suspended below the turret ring by a bar fitted to a mount above the turret ring. The Panzer II turret did not have a turret basket.

When doing a conversion or detailing project such as this, another useful reference in addition to plans and photos, is copies of instruction sheets from larger-scale models that include interiors. I downloaded and used instructions from a 1/35th scale Dragon kit.

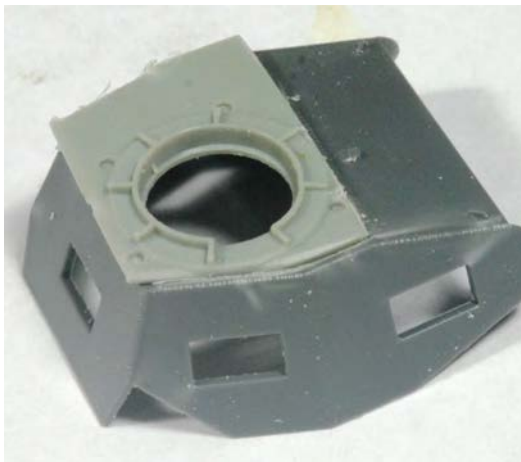




The Tamiya gun mantlet was built as per the kit instructions. However, I did not permanently fit the gun barrels at this point to avoid breaking them during later handling. If the mounting pegs on the Bandai gun breeches are cut square, these can be glued to the inside of the Tamiya mantlet directly to the backside of the recesses molded into the piece to mount the gun barrels. This will ensure the guns line up exactly. As can be seen above left, this offers only basic details. Using more “gizmology” and styrene bits, more detail was added.



To convert the turret roof, only the red areas in the drawing at far left need swapped. Comparing the Tamiya and Bandai pieces, the Bandai roof is slightly larger in all the critical dimensions (red arrows). Thus, by simply cutting this area from both kits, the Bandai piece will be too large and must be trimmed and sanded to fit. This is a good thing—it would be much more difficult if the Bandai piece were too small! Care must be used to remove the roof of the Tamiya turret as the rest must be saved. Not so with Bandai, it can be chopped to pieces as long as the roof is intact.



To fit the roof, I started working at the front corner by the cupola and gradually trimmed/sanded the part in a clockwise fashion until it snugly fit into the Tamiya turret. Although some putty will be needed, using care, a fairly good fit can be obtained—as well as the fit on some commercial kits!



Above left: The tops of the periscopes were added from small strips of plastic rod. The angle shapes on the rear surface is not needed as they will not be visible once the cupola ring is in position.

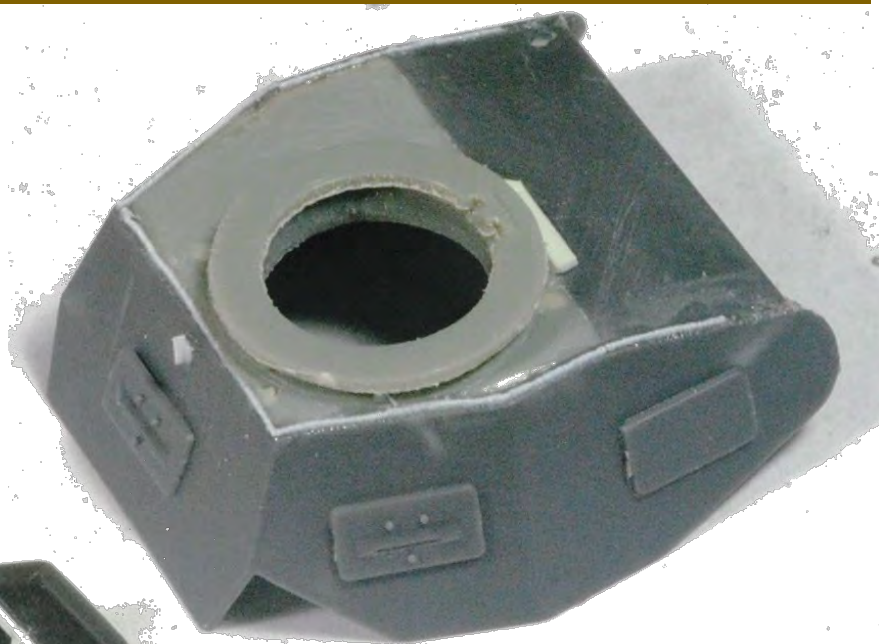
Above and far left: The weld seam around the top of the turret, finely molded on the Tamiya turret, was replaced using the same method detailed in my Sherman article. A thin length of tiny styrene rod was glued in place around the top of the turret, soaked with liquid glue, and while soft textured with the edge of a hobby knife. The result is a fine and realistic weld seam.



Left and below left: According to my reference plans and drawings, the cupola ring is a simple ring. The Bandai part contains various fittings, mostly to attach the part to the turret. It is also quite thick. I trimmed off all the various superfluous fittings and thinned the part using a sanding block as shown.

Matilda II & Panzer II

The ring and the visor covers were glued in place on the turret. A small armored piece in front of the cupola and a lifting hook on the rear of the turret were added using styrene piece.



Also made from styrene are additional interior details such as the periscopes and rudimentary fittings on the interior of the vision ports.



A final test-fit of the three turret sub-assemblies made sure everything fit well together.

The interior is now complete and ready for painting prior to further assembly of the hull.



KITBASHING AND GIZMOLOGY

Not everything we want to model exists in kit form (and in Sci-Fi modeling may not exist at all!). We can, of course, stick with commercial kits and commercial conversion kits. We can also make our own entirely from plastic sheet or other styrene stock.

We can also, like the Panzer II featured in this work, combine parts from two or more kits (with or without any additional conversion and scratch-building) to create the model we want. This is called “kitbashing”, or sometimes “model bashing” or even “model mashups”. The process is defined by Wikipedia as, “a practice whereby a new scale model is created by taking pieces out of commercial kits. These pieces may be added to a custom project or to another kit. For professional modelmakers, kitbashing is popular to create concept models for detailing movie special effects. Commercial model kits are a ready source of ‘detailing’, providing any number of identical, mass-produced components that can be used to add fine detail to an existing model. Professionals often kitbash to build prototype parts which are then recreated with lightweight materials.” I’m sure the process has been used in all modeling genres as long as there have been model kits. In fact, many of the popular vehicles and spaceships in Sci-Fi movies and shows were created using parts from model tank, ship, aircraft, and car kits. It is common in armor modeling to create the specific model of vehicle we wish to duplicate.

When converting, scratch-building, kitbashing or otherwise, we often need or want more detail than is provided in the kit. Again, the interior of the Panzer II in this build is an example. We can certainly painstakingly recreate every little detail and nuance of a piece. This is often appropriate for highly visible large scale items. However, there are times when simply creating the impression of detail is sufficient. To do this, we can use a technique modelers often call “gizmology” or “creative gizmology”. This is nothing more than using bits and pieces scrounged from various sources to simulate detail. According to the great master, Shep Paine, “...the purpose of this technique is to simulate complex mechanisms that would be exhausting to make any other way; from a purely practical viewpoint, ‘gizmology’ yields 90 percent of the results of painstakingly accurate modeling in only 10 percent of the time”. In some ways, gizmology is similar to Sci-Fi modeling’s “greebles” – fine detailing added to the surface of an object to make it appear more complex and visually interesting. This can range from simple geometric shapes to complex shapes and even pieces of machinery (i.e., gizmology). For a classic example, look at close-up photos of Imperial Star Destroyers in the Star Wars movies. Their surfaces are literally covered with greebles or gizmos!

So, if creating details using gizmology, kitbashing models of things, or creating your own real or imaginary machines from scratch, where can you source parts? Be warned before you look at the following list: once you start seeing all the potential shapes and uses of various objects, you won’t be able to unsee them.

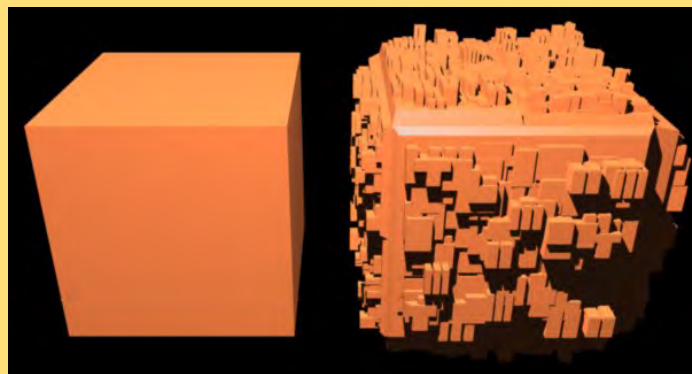
-Obviously, model kits are a main source. Kits can be cannibalized and the parts used in other vehicles or used as things other than the manufacturer intended. Dragon “smart kits” usually have about a million parts, often with dozens of extras. Tank parts are good for hard edges, engines, and for general “industrial” parts, while smooth lines and rounded edges are easily sources from airplane kits (along with a variety of jet engines, radial engines, bombs, weapons pods, canopies, etc.). Ships are great for large hull parts, decking, gun batteries, antennae, and other small structures. Used or incomplete kits are great sources for parts. Almost every modeler has a scrap box of unused kits, parts, and pieces.

-Model train parts are a great source of scale pieces (O Gauge is 1/48th scale) and various wheels, gears, fittings, containers, structure parts, scenery and so on.

-We can look in the trash! Before I throw away old electronics that no longer work, I take them apart and keep anything that looks cool.

-Keep your eyes open in the stores you visit on a regular basis. All kind of interesting container shapes can be found in the make-up aisle! Jewelry pieces from the dollar store and jewelry-making bits can be useful. Hardware parts, various furniture handles and fittings, rug making and sewing grids all have uses. The fabric isle provides tools which is great for smaller-scale fencing, nets, and so forth. Toy figures can provide body parts and pieces of gear. “Transformer” toys have lots of great pieces. Broken toys can be often be found in clearance bins. Pens and pencils have lots of great shapes. The list is endless!

One of the great things about our hobby is that there are literally no limits and no rules to what we can do and create. Don’t put on blinders. Keep an open mind. If there is a model show in my area, whether it be scale model tanks, aircraft, planes, ships, figures, railroads, Sci-Fi, dollhouses and so on, I always stop if I’m not doing anything else. I always find some bit, widget, tool, or technique that proves useful. This is doubly true for multi-genre modelers such as myself. While this series of booklet is about quarter scale armor modeling, I have also worked in larger scales. I have also build planes, ships, the occasional car, and even a large dollhouse. Most of my modeling, however, has been figures—historical, fantasy, sci-fi, horror, Hollywood, and even pin-up—in a variety of scales ranging from 25mm to over 200mm.



Greebles added to a cube, from Wikipedia.

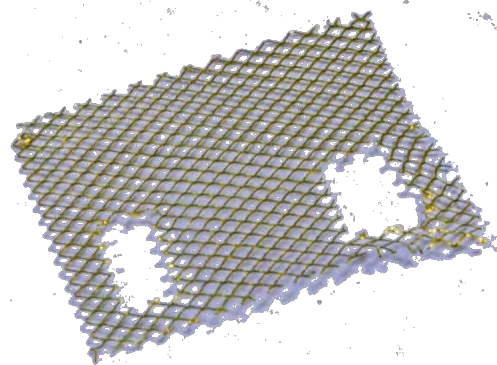
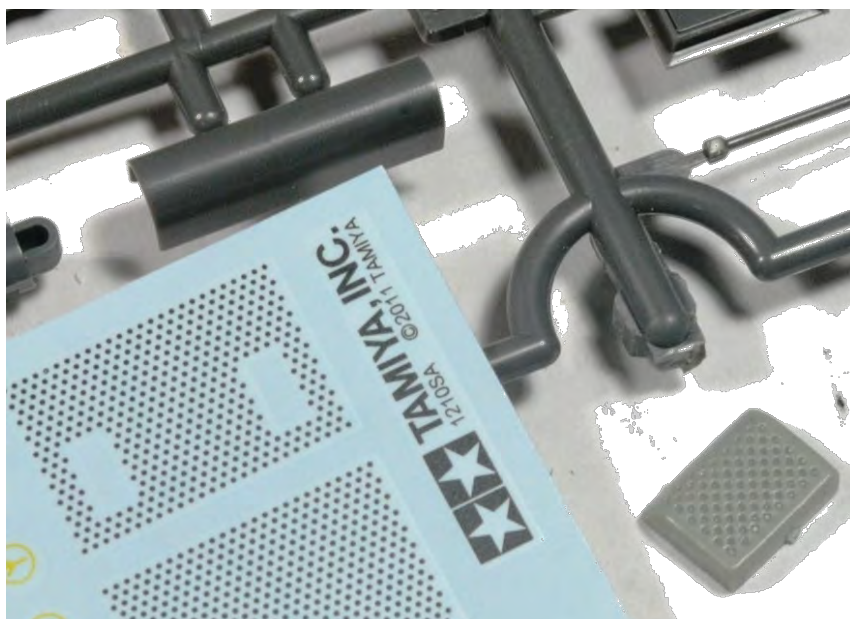
Matilda II & Panzer II

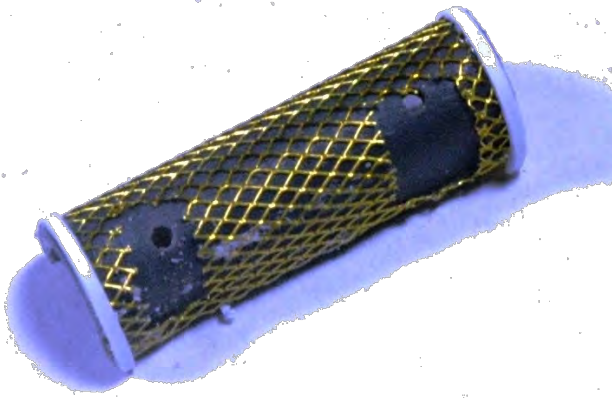
After the interior was painted (refer to the section on "Painting and Weathering"), the hull was closed up and the turret attached. Assembly then proceeded as normal.



While I did not have spare Tamiya track to put into it, I did add the spare track rack on the front of the hull using styrene strip.

Below left: The last alteration to the Tamiya kit was to add some detail to the heat shield on the muffler. The kit simply uses a decal to add the "holes" in the shield. By contrast, the Bandai part (seen in the bottom right of the photo) has indents representing holes molded into the plastic. A photo-etch part would be ideal here, but I did not feel like buying an entire photo-etch set for a single part. I used the decal as a template to cut a piece of fine mesh.





The mesh was glued to the kit's heat shield to add "texture" and details were added using styrene strip. Given its small size, I believe this will be sufficient. The kit's smoke dischargers were then added per the kit instructions.

Armor Modeling "Now" vs. Armor Modeling "Then": The "Lost Art" of Scratch-Building:

Scratch-building *isn't* a "lost" skill per se, but it's not as prevalent as it once was. Back in "the day" (60s/70s/80s), the subject matter available in kit form was much more limited. Aftermarket? Forgetaboutit. Photo-etch detail sets and resin conversion/upgrade sets were undreamed of. If you wanted a rare vehicle, or most variants of common vehicles, scratch-building was about the only way. Stowage? No pre-made sets were to be found. We made it ourselves or scavenged parts from the scrap box. Figures? We had what came in the kits and the limited (poor) offerings from Tamiya and a couple others. Most "serious" modelers had at least basic scratch-building and conversions skills. We worked with the kits available to make what we wanted and we had no idea how "bad" life was. Tracks? Individual link and even link/length were only fantasy. We learned to work with the vinyl rubber-band tracks because they were the only choice. We created or corrected small details with sheet plastic, wire, card stock, etc. And all that's 1/35th scale—1/48th offered far less! We were also limited in paints and other materials – "ready-mixed" washes, filters, and pigments were non-existent. Groundwork? Model railroad stuff like static grass was around, but structures and other things were, again, made from scratch using wood, plaster, paper, cardboard, and other materials. In those days, the most common thing seen in model magazines (the net did not yet exist) were out-of-the-box (OOB) builds with some basic detailing and correcting. Even so, articles on major conversions and scratch-building were much more numerous than today. We've certainly come a long way—the standard of modeling in those magazines is usually quite poor compared to what modelers today are creating!

Today, these shortages and limitations are gone – at least in the immensely popular 1/35th scale. Even in 1/48th scale our choices and options are vast. Research has advanced our knowledge of vehicles and variants by leaps and bounds. We certainly live in a Golden Age. Much more is available in plastic—all types of vehicles, variants, and even "paper panzers". This is supplemented by resin kits and conversion kits provided by an extensive aftermarket. The norm in modeling magazines and web forums today is where a modeler created his (or her) model from kit "A" with tracks from "B", detail sets from "C" and "D", stowage from "E", and figures from "F" with aftermarket heads from "G". Scratch-building and scratch-detailing is no longer usually a necessity, and has become the exception rather than the norm. Unless a modeler chooses, there is no need to even mix paints as numerous modulation, camouflage, and weathering sets (to match any national colors or geography on the planet) are available. Building a diorama? Hundreds of figures are available from every nation in every conceivable pose as is every type of building, structure, and plant imaginable. All of this comes at a price – it's easy to spend hundreds of \$\$\$ on an uber-detailed model kit. So perhaps in addition to scratch-building, another "art" that has been "lost" is that of building a kit straight from the box! The lack of OOB builds is a common complaint I read in the "letters" section of modeling magazines. I believe OOB is still how most modelers build – being perfectly happy with a good kit out of the box rather than a perfect kit that requires loads of money and time (and most kits out of the box are quite good). I will—and do—happily take either road depending on the subject, kit, and my mood.

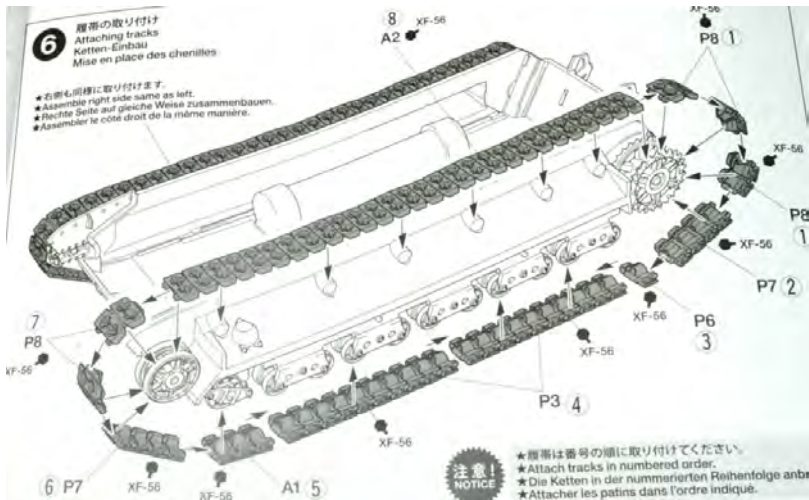
I'm not complaining. All this availability is good for the hobby. Scratch-building hasn't been lost, but it's become more of a "want to" than the "have to" it was in the day. For the most part. Not all scales are as well-populated as the bloated 1/35th. In quarter scale, while there is a good amount of availability, scratch-building skills can still be needed, especially if you are modeling a rare or unpopular subject. Of course, even with this project, I could have purchased many of the things I've built if I were willing to spend wads of \$\$\$. I chose not to: why buy it if I can make it or use a cheaper alternative (I can afford the \$\$\$, but I prefer modeling on the cheap when possible). But these type inclinations are not as prevalent today as they were back then, due largely to lack of need.

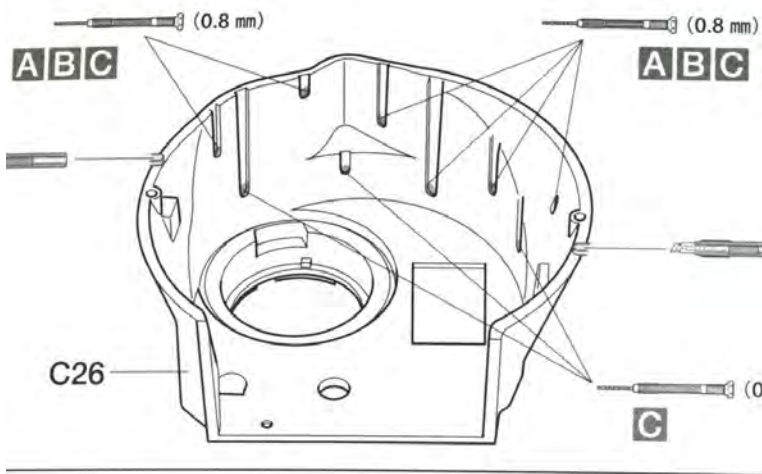
But there is one key difference between "now" and "then". Today, many bemoan the fact that a particular vehicle is not available. They wait, and often become discouraged, for the chance to build their "pet" vehicle. Back in the day, we would have shrugged at the unavailability, rolled-up our sleeves, and built it anyway.

Matilda II & Panzer II

Turning to the Matilda kit, it is a mostly out-of-the-box (OOB) build. This is, without doubt, one of the nicest Tamiya quarter scale kits I have built. As seen at right, the kit features good casting texture, so this will not need to be added as I did on the Sherman build. However, it has the typical Tamiya empty periscopes covers! As seen below right, bits of styrene rectified this problem. The tracks are the easiest line and length I have built. Follow the instructions and they fall together. They even feature pre-molded track sag over the return skids on top.

(The Matilda had return skids, not rollers. The road wheels also lacked rubber tires. At the slow speeds the vehicle was capable was, this did not have a huge effect on efficiency. But I'm sure metal tracks on metal wheels with metal track return skids resulted in a very noisy ride.)





Depending on the version you are building, holes must be drilled in the turret to fit parts. These holes are clearly indicated inside the turret, but the turret is too small to get a drill bit inside to drill straight through. The solution? Hold the turret to a light and the thinner areas will be readily visible so you can drill straight through from the outside!

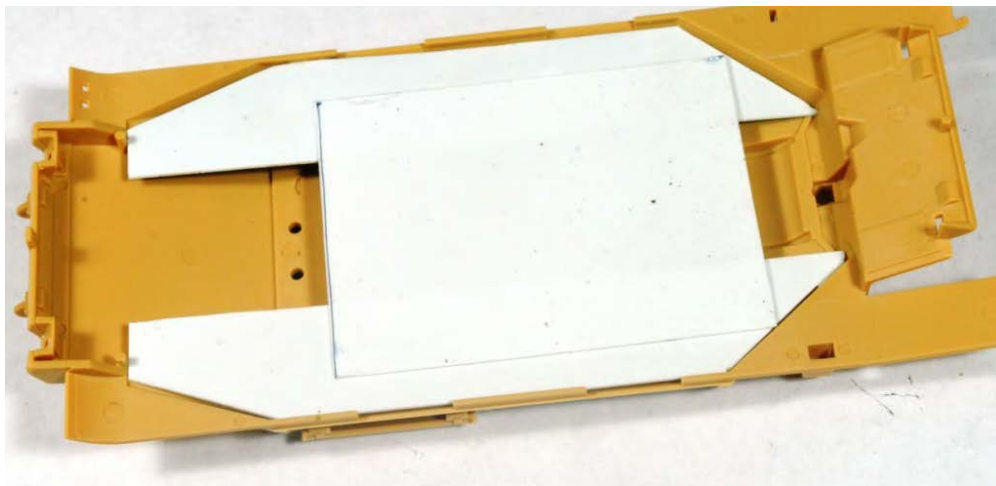
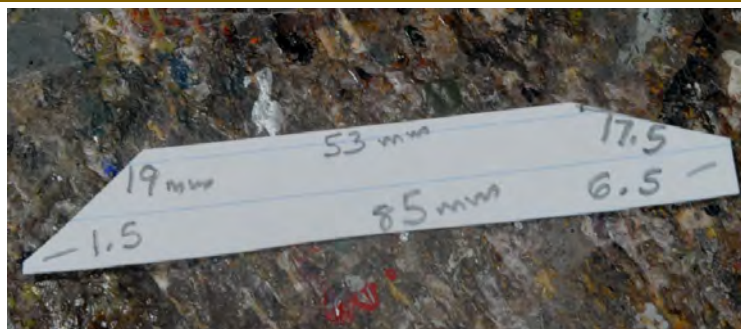


Another issue with the kit (and common on all injection molded plastic kits) is that the undercuts on the end of the rolled tarps are very vague. Also, the underside has hollow cutouts. As this represents tarps tied to a rack on the side of the turret, it is possible the underside can be viewed. A modeler could replace the parts with aftermarket pieces or scratch-build new parts. I chose simply to fix the kit parts. This could be done by carving more detail into the ends of the plastic rolls and filling the hollows with putty. I used putty for both. First, using a cutting bit in my Dremel Motor Tool (at slow speed to avoid melting the plastic), I hollowed-out the ends of the rolls. These were filled with putty and shaped with a sharpened toothpick. The underside hollows were simply filled with putty and the rack details added with thin styrene strip. Right: The rolled tarps were further detailed with the addition of more tarp material, made from Magic Sculpt epoxy putty rolled thin and put in place using the same methods as shown on earlier builds in this series.



Matilda II & Panzer II

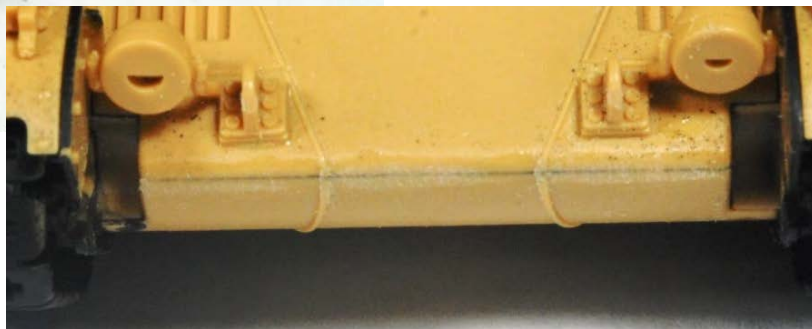
The hull sponsons above the tracks are hollow on the kit. In fairness, this is likely not a problem as the skirt armor and tracks will probably render this area invisible. However, I did not want any light to be able to seep from the sponsons to the commander's hatch or vice versa. Sheet plastic was cut to fill the sponsons using the template shown at left. While I was at it, I also blanked-out the hull below the turret. This, combined with painting the inside of the hull and turret in black, should render the inside of the Matilda completely dark with no vision possible into or through the hull.



Below Left: Prior to gluing the upper hull to the lower hull and attaching the side skirts, the inside of the hull, the wheels, tracks, and backside of the skirts were all sprayed with black. A test fit with the parts and turret in place confirmed that no light was getting through the model. The black will also ensure that any visible areas I cannot reach with the paintbrush will be a suitable very dark shadow color. I did not worry about overspray of the black onto the exterior of the vehicle as it too will eventually be primed in black prior to painting. Construction of the vehicle then continued per the kit instruction sheet.



Bottom: When gluing the hull halves together, take care with the joint on the front. Most joints on the model follow actual joints or are invisible. But like the joint on an airplane model's fuselage, this one shouldn't be visible—the nose casting is a single piece. The fit is very good, so when gluing, make sure the parts are fitted tightly together. Then, after the glue sets, some light sanding should be enough to make the joint disappear.



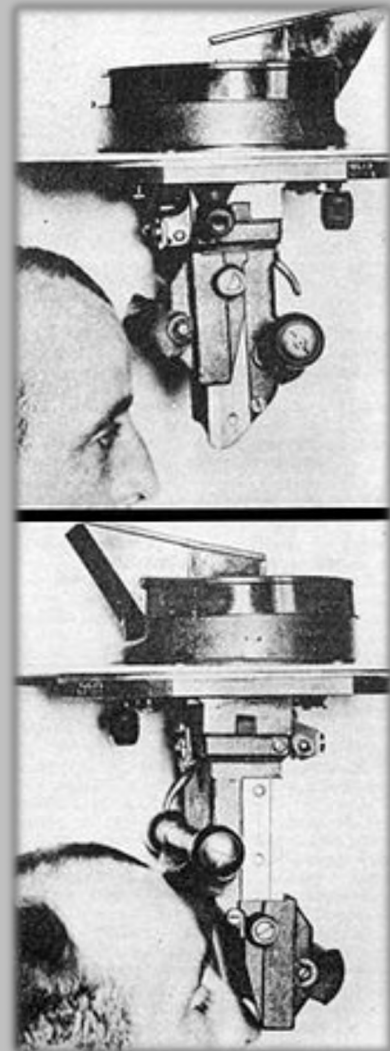


While only the face of the periscopes are visible in the gunner and driver positions, the open commander's hatch makes this missing periscope very visible. It was made using styrene bits using the below photos as a guide.



THE REAL THING

Above: The commander's periscope on a surviving Matilda. Right: The periscope in operation. The Vickers Tank Periscope Mk IV was designed by Polish engineer Rudolf Gunlach. It was the first device giving the tank commander a 360 degree view with a single device using a rotating periscope and second eyepiece. As part of pre-war Polish-British cooperation, the patent was sold to Vickers Armstrong for only a penny. Russian and US tanks used a similar design. Post war, the technology was used in most tanks for nearly 50 years until replaced by electronic devices.



THE REAL THING

The kit includes an auxiliary fuel tank mounted on the rear of the vehicle. However, for these early Desert War vehicles, the tank should be replaced with a rack to hold six 2-gallon fuel cans. At the start of the war the British used 2-gallon and 4-gallon fuel cans. Although both are often referred to by modelers as "flimsy" cans, that term was actually applied only to the 4-gallon cans. Cheap and plentiful, they were not robust. During shipment or transport over long distances, this resulted in a large amount of loss due to damage or leaking of the cans. The 2-gallon can had been in use since WWI and was actually of fairly substantial construction.

These photos of Matildas in the early North African Campaigns (Including Operations Brevity, Battleaxe, and Crusader), show the rack designed to hold 6 of the 2-gallon cans. Based on these photos, and a few more I ran across in the course of my research, they appear to be of a standard design.

The photo below, found on a militaria collector's site on the web, shows one of the cans. These were 11 inches high, 9 inches wide, and 5 inches deep. Colors could vary with common colors being Service Drab, Green, Sand, White (for water cans), or even various colors of civilian cans.





The first step needed in making and fitting the fuel can rack is to fill the mounting holes for the auxiliary fuel tank. A bit of Magic Sculpt made quick work of these. It is water soluble, so a quick swipe with a damp finger smooths it out perfectly, eliminating the need for further sanding after the putty cures.

For the 2-gallon fuel cans, I chose to copy the cans included in the Tamiya Dingo kit (mounted in pairs on each rear fender). The actual can as seen on the facing page has a pressed-in indent. However, I doubt this is more than a quarter inch which, in quarter scale, works out to about a tenth of a millimeter. I will not physically add this detail to the cans as it would be nearly invisible in this small size. The impression of the impression can be added with highlight and shadow when painting if desired.



Actual can dimensions work out to be, in 1/48th scale, 5.7mm high, 4.7mm wide, and 2.5mm deep.

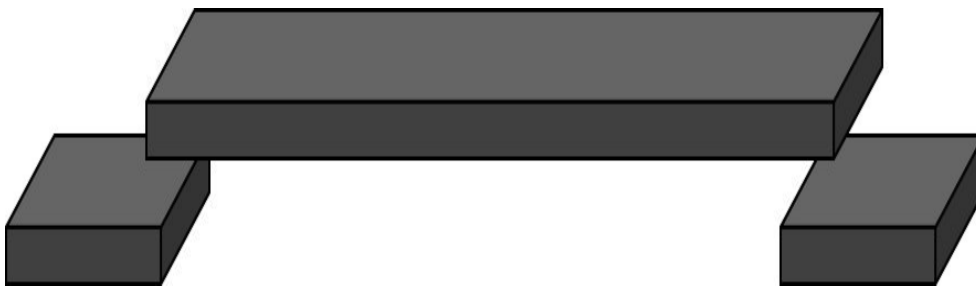
The Tamiya cans in the Dingo kit are sized at 6 x 5 x 3mm.

I used 2.5 x 4.8mm strip cut into 6mm lengths. The strip, prior to cutting, was slightly rounded at the corners to match the actual cans. This was done using a sanding stick. TIP: I didn't try to cut each individual can to 6mm in length. The cans were cut overlong and glued together with a thin (.5) mm strip glued between every two cans to represent the crosspieces in the rack. The cans were glued together using two square metal billets taped to a sheet of glass to ensure they were perfectly aligned. There are, and I have, fancier tools designed to perform the same function. But I rarely use them—I prefer the simple accuracy of the steel billets.





The end result of that exercise was to have a single piece consisting of 6 over length cans with rack dividers between every two cans. Using a mitre box and razor saw, the entire construct was then cut down to a 6mm height. This ensured that each can was exactly the same size—something that would have been more difficult cutting the cans individually.



Detail on the cans consists of the handle and the spout on top. Each handle was made as shown at left using one long and two very short lengths of .25 x .5mm strip. (The two bottom pieces were left long and were cut to length only after the handles were assembled and the glue cured.)

The handles were then glued onto the cans. The spouts were made with "salami-slices" of .88mm plastic rod.

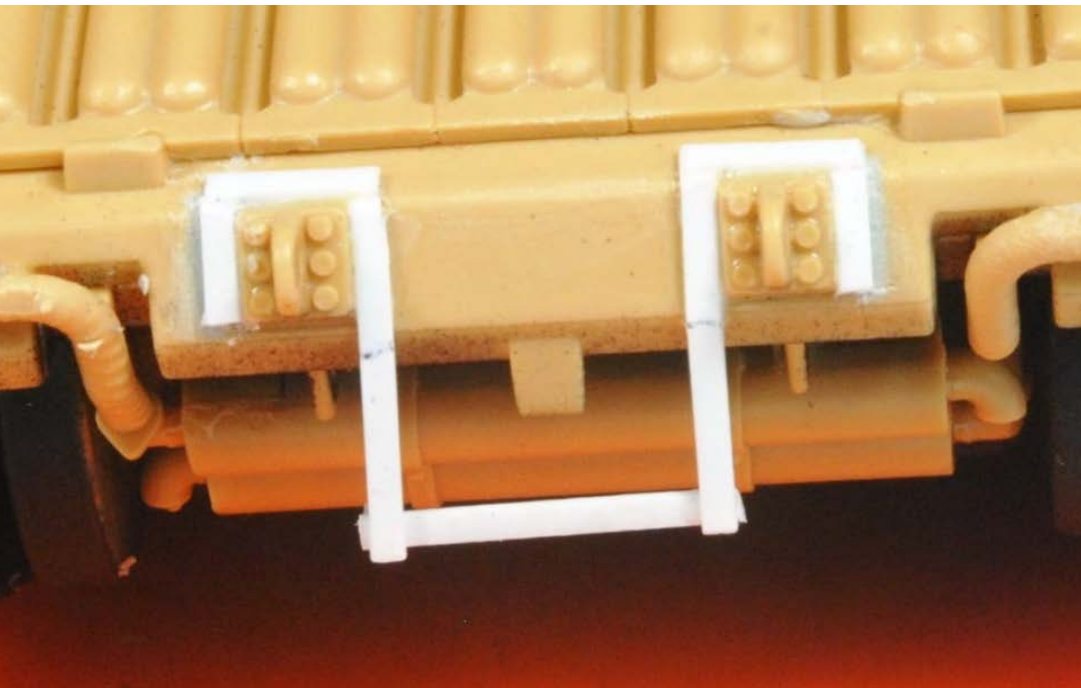




The rack was built around the cans. The bottom pieces and the top back piece were fashioned from 1mm "L" angle styrene. Side pieces, horizontal and vertical making an open square on each end of the rack, were made from .5 x 1 mm strip. These pieces were cut long and only cut to proper length once they had been glued in place.

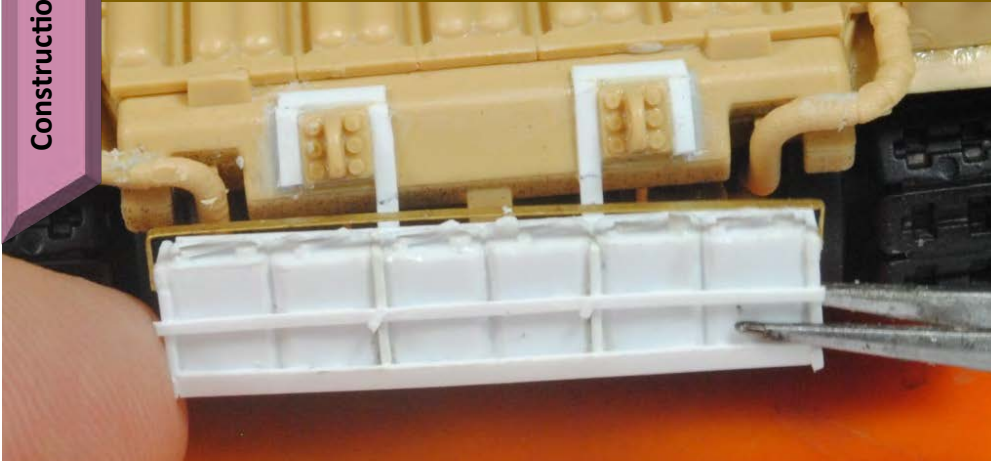


The retaining bars across the front was made from .25 x .5mm strip. The latches are tiny wedges of styrene. The bar across the top is a piece of fret from an old photo-etched set bent to shape and cut to length. This was superglued to the rest of the rack.



The mount for the rack was built on the rear of Matilda using .5 x 1mm styrene strip.

Matilda II & Panzer II



A quick test-it shows the rack to look like the photos in both design and size. (In this photo, the rack is just held in place—when glued it will actually sit properly level.) I do not know the dimensions of the original racks. However, by making the cans to scale and building the rack around them, I'm sure it is very close. My construct is 29.5mm long and seems to match photos very well.

The final step before the Matilda is ready for paint was to attach the tow cable clevises. I chose not to add the cables as they are often not present in photos. On the one eye where no clevis was attached (the near one in this photo), I drilled out the eye hollow. This is not necessary where the clevises are attached as the eye is not visible on these.



Working With Styrene Sheet and Shapes:

Companies like Plastruct and Evergreen make sheet plastic in all colors, textures, and thicknesses and sell a variety of forms such as strip, bar, rod, tube, "U", "L", "I", tread plate, siding, clapboard and on and on. This is very useful when detailing or scratch-building. The only tools you really need are a good hobby knife, a metal straightedge, some sanding sticks, and perhaps a scribe (I use dental tools).

Thin plastic can be cut with scissors, but it can cause the sheet to curl. Plastic can also be cut with a saw, but it can result in ragged or chipped edges and burrs. I use a hobby knife and a straightedge to score the plastic along the line I wish to cut. Then simply bend the plastic away from the score and it will snap cleanly and exactly. Usually, scoring about a quarter of the way through is enough. If a burr does form, simply scrape it away with your hobby knife.

Styrene is easily glued with liquid plastic model cement.

You can also scribe the plastic using a similar method to cutting it—making panel lines for example. I hold the straightedge tightly against the sheet and draw the scribe (a dental tool in my case) towards me. You can achieve a uniform depth by using a uniform pressure. If a burr or raised edge forms, you can simply scrape it away.

You can heat pieces of the plastic sprue trees and stretch them to make antennas and wires. The styrene plastic forms—rod, hex, strip, etc., can also be stretched like sprue. Gently and evenly heat the part over a candle and draw it out to the desired length and thickness. It will retain its shape - for example, a hex rod will still be hex rod, just a longer and thinner one.

Thin plastic rod or stretched sprue can also be used to fashion missing weld seams. Simply use a piece of appropriate size, put it in place, and soak it with liquid cement. Once softened by the glue, it can be easily textured with the tip of a hobby knife to create the weld texture.

These are just a few samples of what can be done. If you plan on working with styrene parts, sheets, and shapes, a very useful resource is the book by Evergreen titled "Basic and Advanced Tips and Techniques of Styrene Modeling" compiled by Bob Hayden. While an older book, and somewhat outdated, it has several useful chapters on scratch-building and converting using Evergreen styrene products. I highly recommend it. I believe it can be downloaded from the web.

Painting and Weathering



There are all sorts of different paint mediums and types you can use. Each has advantages and disadvantages. Some tasks are best performed with a certain type. What I use is represented in this photo. For airbrushing, I use primarily the Vellejo Model Air line. Andrea makes Silver and Gold paint sets which include a range of acrylic colors and inks. Most of my metals are painted using these sets. For general brush painting, I use any brand of acrylics including craft paints such as Delta Ceramcoat, Folk Art, and Apple Barrel. These are good quality paints that cost only a fraction of the more expensive model colors. Oil paints are ideal for weathering effects such as washes, filters, dot filters, stains, and dust buildup. Pigments (or powdered pastel chalks) are also very useful for adding dirt, rust, and mud to vehicles and groundwork.

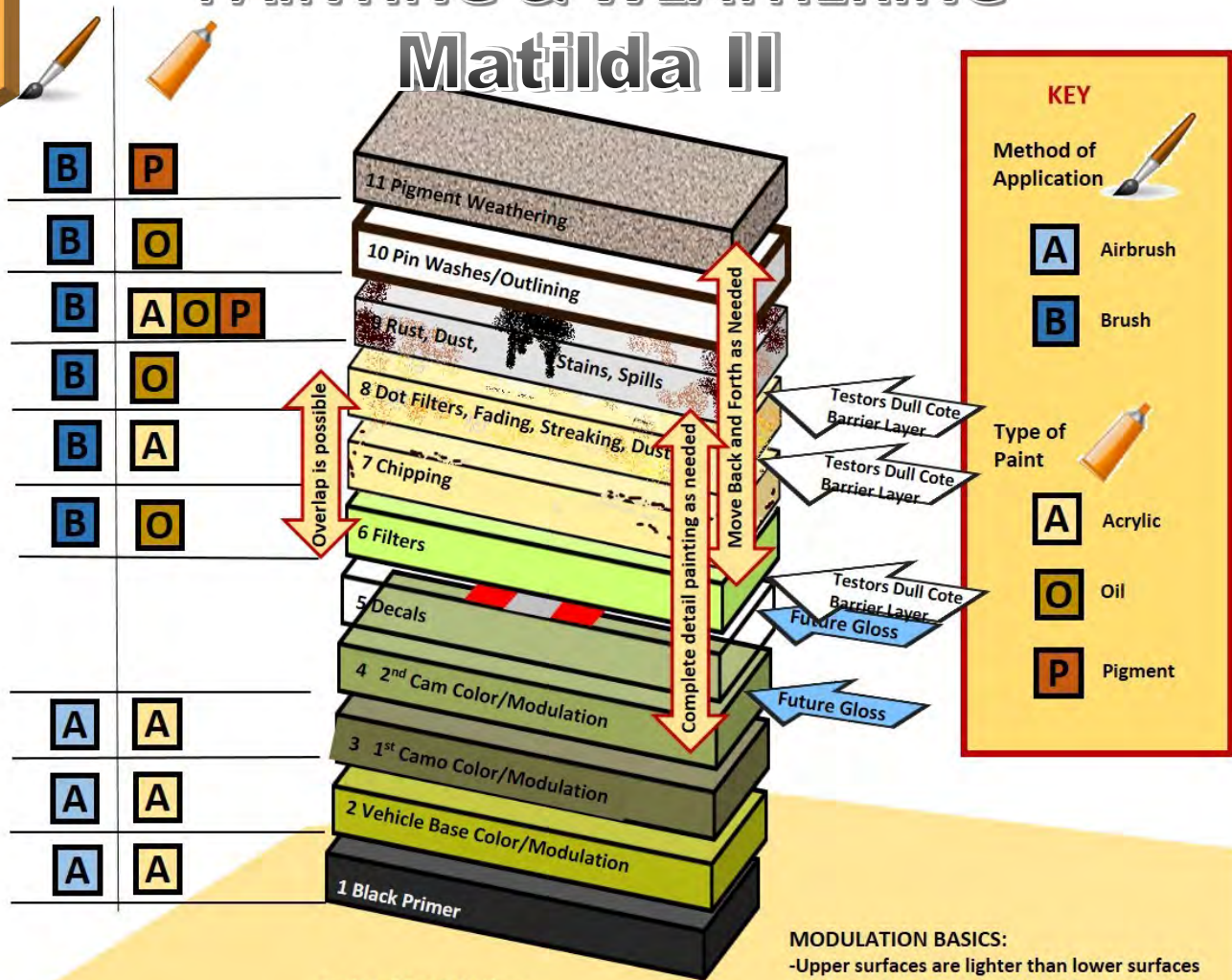
Painting followed my normal methods. These are explained in my previous build articles and graphically shown on the next two pages. However, there are two considerations we haven't had to deal with previously. First, there are two vehicles in this scene. In previous builds, it was only the vehicle, figures, and groundwork which had to compliment each other. Here, we add an additional vehicle. Although they are distinct in type and nationality, these differences are recognized by neither the sun nor the environment. Thus, methods used for painting and weathering should be consistent between the vehicles. This means the direction and intensity of modulation, shading, and highlighting should be same on both tanks. While they may be weathering to different extents (perhaps the little Panzer II is a newer arrival to the desert than the Matilda), the type of weathering, weathering techniques, and colors used should show consistency from vehicle to vehicle. After all, they perform similar functions, operate in the same environment, and are subject to largely the same activities and stresses.

Secondly, all our previous builds featured vehicles in monotone colors (even the Sd.Kfz 250/10 featured a monotone white finish—with the added complication of most of the white having been worn away revealing the monotone grey underneath). Here, we have two camouflaged vehicles. One features two low-contrast colors applied in a cloud pattern with soft edges. The other has a three-color hard-edged scheme. Our modulation techniques will remain unchanged—we simply apply them to more than one color per vehicle. As for the patterns themselves, we will look at applying the camouflage on the Panzer II freehand with an airbrush using no masks. We will also air-brush the hard-edged pattern on the Matilda, but this will require masking.

While I use my airbrush, there are options. You can, if you chose, paint the patterns by hand using a brush, although creating a soft-edged pattern is much more difficult. You could even combine methods by brush painting the borders of the hard-edged pattern and then filling in the areas using an airbrush. As with most aspects of modeling, there are several ways to proceed. The choice is yours. I will demonstrate only the methods I used to paint these particular models. Let's look at how it was done:

PAINTING & WEATHERING

Matilda II

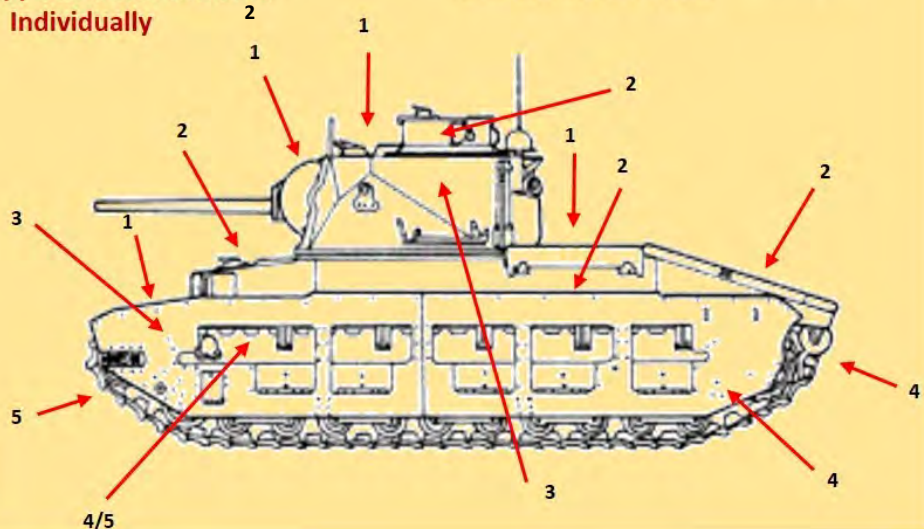


MODULATION BASICS:

- Upper surfaces are lighter than lower surfaces
- Horizontal surfaces are lighter than vertical surfaces
- Upper slopes are lighter than lower slopes
- Areas near the top of the vehicle are lighter than areas near the bottom

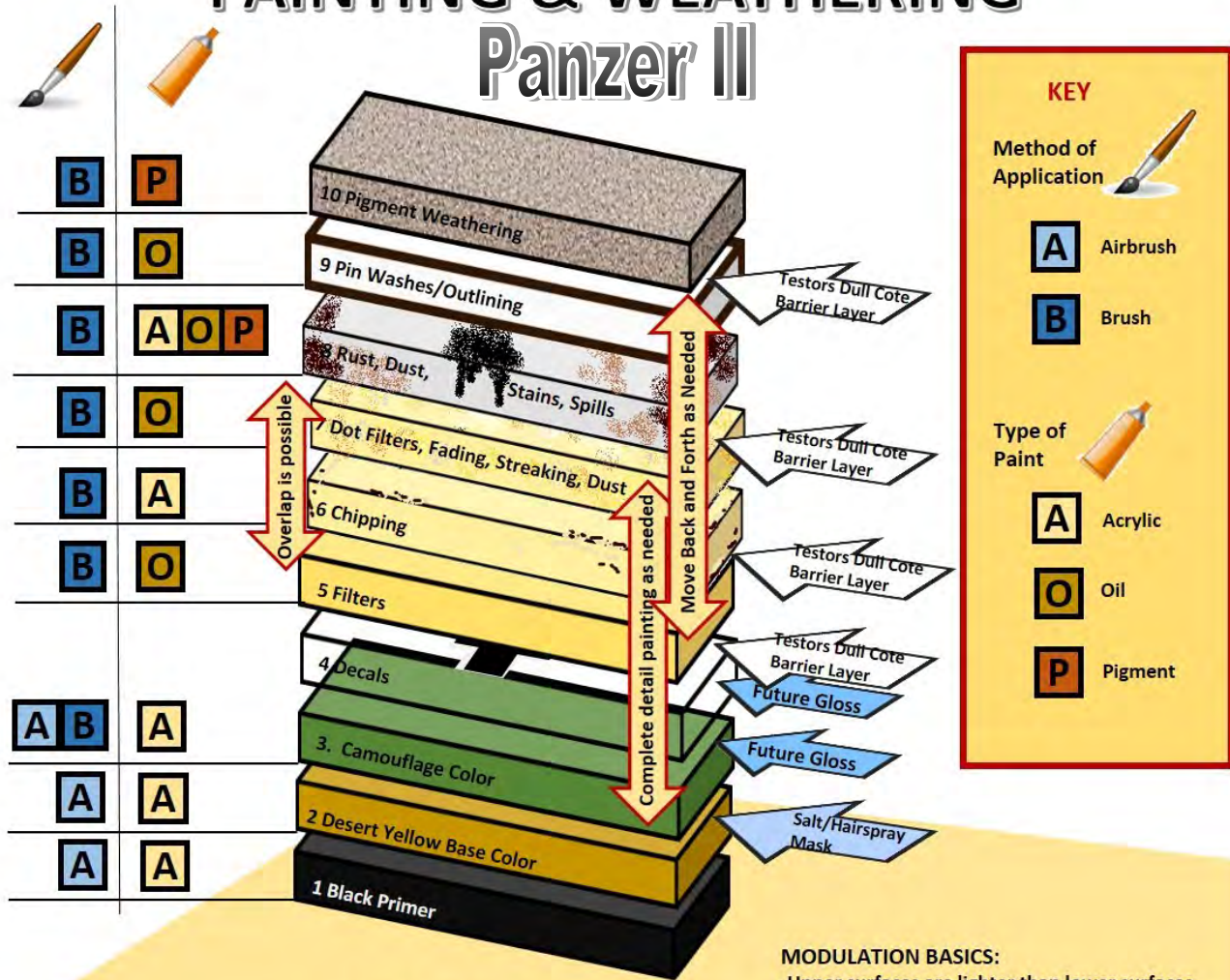
Color Modulation

Using the Stop Sign Rule (Step 2-4). Each Camouflage Color is Applied and Modulated Individually

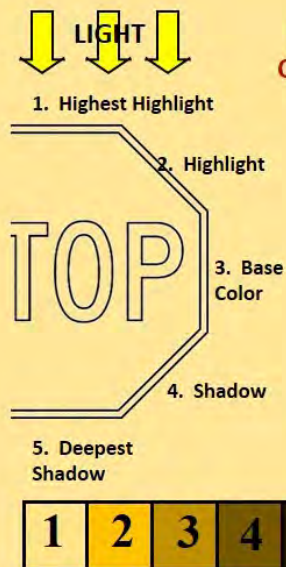


PAINTING & WEATHERING

Panzer II

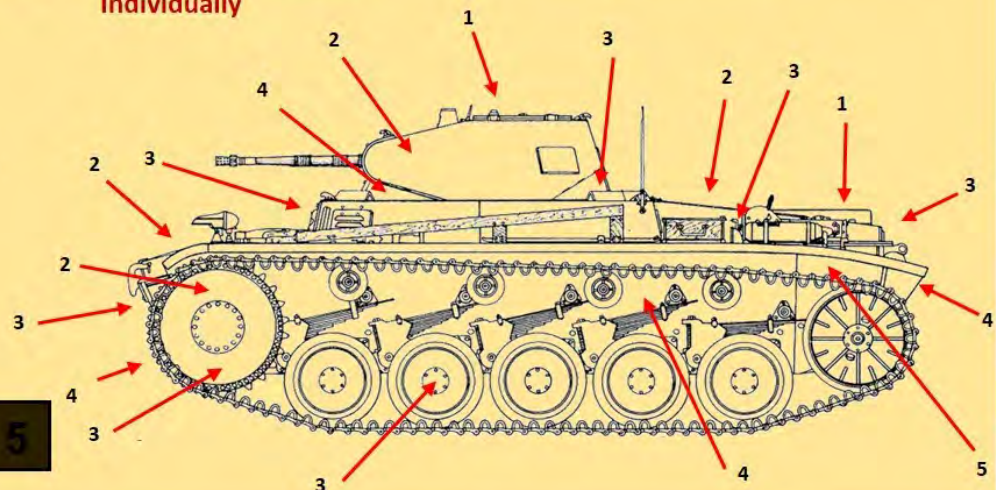


Color Modulation
Using the Stop Sign Rule
(Step 2-3). Each Camouflage
Color is Applied and Modulated
Individually



MODULATION BASICS:

- Upper surfaces are lighter than lower surfaces
- Horizontal surfaces are lighter than vertical surfaces
- Upper slopes are lighter than lower slopes
- Areas near the top of the vehicle are lighter than areas near the bottom



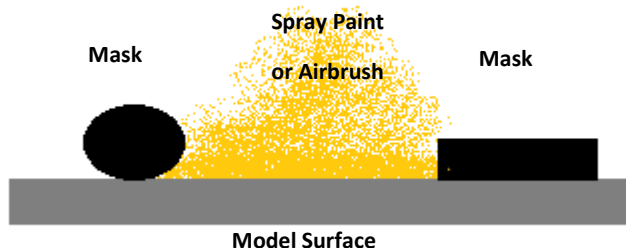
MASKING METHODS

Unless you paint entirely by hand, you will need to mask some areas of your model during painting. There are numerous ways to mask. Shown on these pages are some of the methods I use. The ones used on these models are shown in more detail on the following pages. These are not the only methods, there are others. For example, masking fluid is an option, but many of these contain ammonia which can attack Future floor polish and some acrylic paints. When using putties or masking fluids for masking, test first to make sure your putty doesn't leave any residue behind or damage the finish. Take care applying masks over delicate details as they can be rough to remove without damaging the parts. Loose masks, such as card or Post-It notes simply held over the surface can work in the same fashion as raised masks. The sharpness of the paint edge depends on how far the mask is held from the surface. These can be cut to shape. Holes can also be put in them if painting a mottled scheme. Other methods, such as Cling Film and pre-cut masks, are often used on aircraft models, but are not as useful on armor models. Still, they are an option. Stencils can be used instead of decals for painting markings if you so desire.



Above: We've already seen in the Sd.Kfz 250/10 build that tissue paper (or pieces of tape/index card, etc.) can be used to mask off the interior of an open-topped vehicle to prevent paint overspray from reaching inside the vehicle. Similar methods were used to protect the interior of the Panzer II in this build.

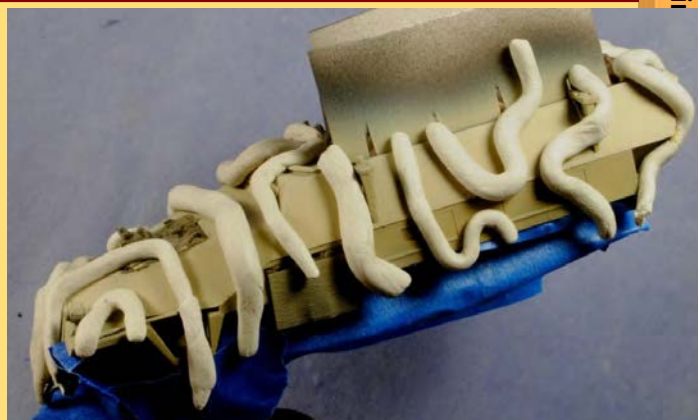
Below: Masks can allow you to paint hard or soft-edged camouflage. If the mask fits tightly against the surface (below Right) the demarcation line will be solid, creating a hard-edged pattern. If the edge of the mask is slightly raised (below left), some paint will get past, resulting in a slightly blurred, soft-edge pattern.



Above: Tape can also be used to mask, as long as the surface shape is not too complex and here are few raised details. In this case, the regular camouflage and markings were added, some basic weathering done to indicate the underlying paint was older than the top layer, and then the pattern masked and the vehicle over sprayed with winter white. This top coat was irregular and transparent in places. Note how in the top photo the interior is masked using bits of index card and tissue paper. In the bottom photo, the masking is removed as no more airbrushing will be done. Further weathering can now be applied over the entire vehicle. In this instance, both the underlying camouflage and the winter white colors have been modulated.

Left: The back of a raised paper mask. Small blobs of poster putty are pressed into place. These also stick to the vehicle, holding the mask about 1-2mm away from the surface. This allows the painted edge to be somewhat feathered.





Above: I sometimes use MIG Production's "Masking Putty". It's pricey, but it works well. Silly Putty can be used in the same fashion. In fact, the MIG product is very similar to Silly Putty in many ways. The putty is quite soft and flexible. It feels slightly oily, but it leaves no residue behind at all – either on your fingers or on your models. If you pull slowly, you can stretch it just about forever. But give a quick tug and it breaks cleanly. It's self-leveling. Wad it into a ball and drop it back in the tin, after an hour or so, it will have settled right back into the shape it originally was. If kept in the tin when not in use, I don't think it will ever dry out.

Hard-edged camo can be brush-painted, but masking and spraying is quicker and can yield better results. I pull and flatten pieces of the MIG putty on a sheet of glass and cut the masks roughly into shape with a hobby knife – it cuts very easily with a knife or scissors. Then I just pick them up and apply them to the model.

A tiny bit of pressure will stick it in place pretty good. I use a putty spoon to make any final needed adjustments. If you cut your piece a little small – no issues, just stretch it to fit. The self-leveling qualities are great here – in a couple minutes, the putty will snug down quite nicely over details such as rivet heads, hinges, panel lines.

Once happy with the pattern, spray your color. Note the camouflage pattern is modulated to the same degree as the base color. Remove the putty (it peels off very easily or can be lifted with more putty – it sticks tenaciously to itself), and you have a nice clean pattern. Paint seems to absorb right into the putty, leaving the putty no worse for wear and just as pristine and residue-free as it was before.

Above: Poster putty is another option. While I often refer to this stuff as "Blu-Tac", it in fact has several brand names including the original "Blue Tack" and many others. It also comes in both blue and white varieties. Whatever you use, test it first to make sure it doesn't leave any residue behind or lift paint. In this instance, I rolled the putty into sausages and applied it to the model. When I sprayed, this kept the pattern tight and acted as a mask while the round edges of the sausages still allowed some slight feathering at the edges creating a very slightly soft-edged pattern.



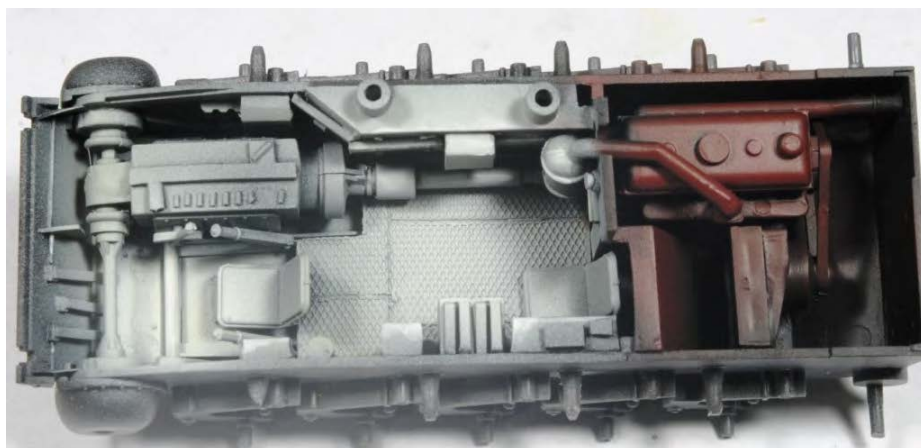
Above: The products used on this page.

NOTE: With the exception of the Sd.Kfz 250, all models on these pages are part of my "Project 251" - a series of Sd.Kfz 251 German Halftracks. As of this writing, I am working on number 16 with two more to go!

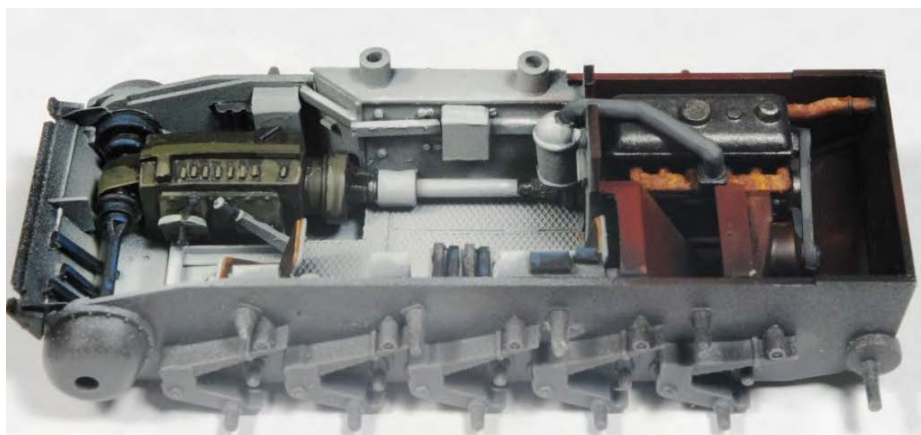


Most of the interior will be in deep shadow. Therefore, when airbrushing, the paint was applied straight from above. Where this wasn't possible, it was applied from the direction of the nearest hatch. This ensured any areas not receiving light from the open hatches were very dark. If viewed from straight above, the interior looks mostly white. If viewed from below, it would be mostly black.

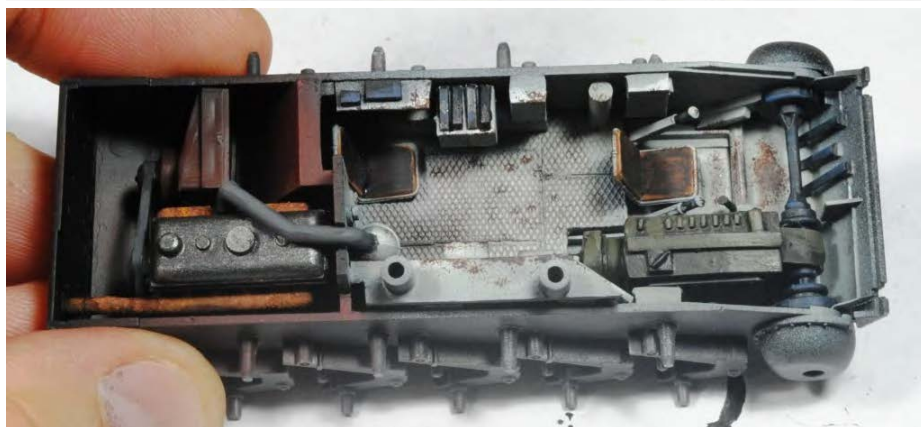
Top: The first color added over the Black primer was US Grey Light with a touch of Black mixed in.



Second: Further highlighting was done first using White Grey only in areas receiving light from open hatches. Finally, some white grey mixed with white was applied with a brush on the high points of lit areas. The engine compartment was sprayed first with a mix of Vallejo's Black and German Red Brown primer colors. The highlighting was done using straight Red Brown. Not shown, the tops of the open engine hatches were given a high highlight made from the Red Brown mixed with a bit of Scarlet Red.



Third: Details were painted. Green areas were painted with a mix of Black and German Green. Highlighting was done first with German Green then with Light Grey Green. Black areas were painted with a mix of Midnight Blue and Black, highlighted with Night Blue, and shaded with Black. The engine was painted in a mix of Black and Lead. Highlighting was done with Lead and high highlighting with Steel. Rusty areas were painted Brown Iron Oxide and stippled with pigments. Hoses and belts were painted Charcoal and highlighted with Pewter Grey.



Chipping was applied with a sponge using a mix of Tank Brown and Black. Floor tread plate was lightly dry-brushed with Steel.



Above: Further weathering was done with oil washes and glazes (Burnt Umber + Black overall and Black + Sap Green representing oil spills in the engine compartment) and sand-colored pigments. Other items were painted using the colors and methods spelled out in previous build articles.

Left: The turret ready for assembly. Periscope glass was painted Cam Green with a Glass clear coat.

What isn't visible through the hatches will be furthered darkened by natural shadows. I am glad I put so much work into the interior. While I didn't expect much to be visible, I was surprised. After sealing up the hull and turret and found I was able to see more of the interior than I thought would be possible. Not everything is visible (the interior of the upper hull, for example), but much is.

Afrika Korps Vehicle Colors 1940-41:

The rush to get units to Africa resulted in initial vehicles being dark grey. Dust and mud were common camouflage methods during the early part of the campaign. Later arrivals were generally painted in tropical colors prior to shipment to Africa.

In March of 1941, it was ordered that vehicles destined for Africa be painted in overall yellow brown (RAL8000) with grey green (RAL 7008) overpainted on 1/3 of the vehicle as camouflage. These colors were fairly low contrast—it is often hard to tell from photos whether a vehicle is plain yellow brown or has the camouflage applied. Many of the surviving grey vehicles were eventually repainted. There were many variations. Vehicles in a single color were common, or the camouflage colors were applied over the grey, covering only part of the original finish. These colors remained official until superseded in March, 1942.

In addition to standard colors, borrowed Luftwaffe or Italian colors were sometimes (though rarely) used as were captured British paints. Conditions were harsh on paint, with bleaching, fading, chalking, cracking, peeling, and blistering being common. As supply became more difficult, paint had a low priority. Thus, a great variety of colors in various stages of deterioration were seen.

Matilda II & Panzer II

The Panzer II interior masked for painting. The front hull and turret hatches were filled with tissue paper. The engine hatch was blocked with Painter's Tape. Note the Bandai spare road wheel has been mounted on the rear hull. The kit supplied mounts were trimmed off and a new mount made from plastic bar and stretched sprue.



Left: The vehicle base color was applied and modulated. Below: the camouflage color was then applied freehand using the airbrush. This was applied thinly, so that the base color modulation shows through. I normally shoot at between 20-30 psi with the airbrush. For work such as this, I reduce pressure to about 10 psi.

Vellejo Model Air 030/Green Brown is a good match for the RAL 8000 base color while Model Air 024/Khaki Brown is close to RAL 7008. The problem is that these colors are very low contrast. With modulation, shading, highlighting, filters, and

weathering, I was concerned there would be no visible difference. To compensate for this, I slightly altered the base color toward sand yellow and the camouflage color toward green. For the base, dark shadow is Tank Brown. The next layer saw Green Brown added to the Tank Brown. The mid tone layer is Green Brown. Highlights were applied first by adding IAF Sand, second by adding Aged White, and finally by using a mix of IAF Sand and Aged White. Camouflage was applied using Light Grey Green missed with Khaki Brown. As stated above, the modulated base color was used as a pre-shade (like the black and white I initially painted my StuG III) and the camouflage applied thinly so that the underlying modulation showed through





Where masking was needed (where the turret was turned, cutting off the otherwise continuing pattern from turret to hull), small pieces of Post-It Note were applied. These notes are very low tack and do not damage or lift the underlying paint.

The camouflaged painted Panzer ready for the application of decals and weathering. The tank was weathered using the same colors and methods as those on the Matilda to ensure consistency. The contrast is fairly high now, but this will be greatly reduced with the addition of subsequent filters, washes, dot filters, and weathering.



Decals were applied as normal (over a layer of Future with another layer of Future on top and then coated with Dullcote clear flat). They come from a variety of sources. The number "8"—identifying the company—is a Tamiya leftover from my Sd.Kfz 251 builds. The DAK palm trees are AFV Club leftovers from the same project. The German crosses are from an Echelon decal set and the 15th Panzer Division emblem is simply hand-painted.

Matilda II & Panzer II

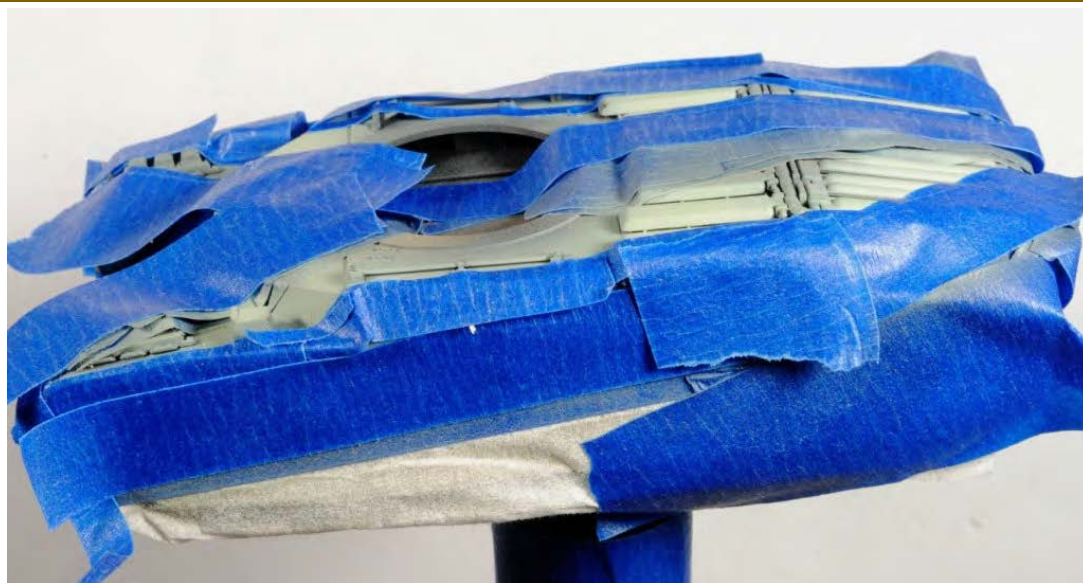


For the Matilda, I started with the Light Stone color. This was applied over the Black Primer starting with Tank Brown. Next was Tank Brown and UK Light Stone in about a 1/3 ratio. The base color of UK Light Stone was next. For highlighting, this was lightened first with Portland Stone and finally with Sand. Once this had thoroughly dried (at least 24 hours—if you can still smell the paint, it is not thoroughly dry), masking was applied for the Silver Grey color. I used blue painter's tape as this is fairly low tack and does not lift the underlying paint. It was cut into thin strips by sticking it to a piece of glass and then cutting it using a new hobby knife blade and a metal straight edge. The edges of the pattern were masked with thin strips pressed into position to keep paint from leeching under them. Then the pattern was filled in with larger bits of tape.



Here the tank is ready for the application of the Silver Grey color. In addition to the tape, note that tissue has also been used to fill the sand channels in the hull sides and is also hanging down covering the lower hull sides.

I did NOT follow Tamiya's directions. Mike Starmer is considered one of the foremost experts on this pattern. According to Mike, there were a few identifiable patterns of Caunter used on the Matilda. He provided me with drawings showing the pattern as it was applied to this particular tank. Mike refers to this pattern as the "Caunter B".



The Silver Grey color was applied starting with a dark shadow color of Panzer Grey and INT Grey Green. More INT Grey Green was added for the shadow layer. The midrange tone is INT Grey Green. For highlights, Sand was added first followed by Aged White. Masking was then applied over this leaving only the areas to be painted slate unmasked as seen in the top photo. This color started with a dark shadow of Black. Dark Green as added for the shadow color. Midrange is straight Dark Green. For highlights, Light Grey Green was added first followed by Sand.

After this was sprayed, bottom photo, all masking was removed showing the Caunter pattern. Some small areas of touch-up are needed and can be done with a brush using the same colors as those which were sprayed. Note that the turret is turned. If facing forward, the lines on the hull and the turret would match. You should also note, that if viewed from above, the lines of the Caunter pattern seem to run straight from their starting points to their termination point on the rear hull. Darkest colors are on top while lower areas and shadow areas (inside the hull sand channels for instance) are the lightest color. This is proper application of the principle of counter-shading.

Caunter Camouflage:

Through 1941 a three-color scheme applied in a horizontal splinter pattern was common on British vehicles in North Africa. Designed by Col. Caunter of the 4th Armoured Brigade, the pattern has come to be identified by his name, although it was not referred to as such. The pattern is one of the most striking and well-known but least-understood camouflage schemes of WWII. Depictions often show one color as a light blue – a repeat of an error in the painting of the Imperial War Museum's Matilda in 1960.

The base color was either Light Stone (sand yellow) or Portland Stone (cream with a slight greenish tint). Over this was applied Silver Grey (pale grey green) and either Slate or Khaki Green (both dark grey-green). As to pattern, there was an official drawing based on the A9 Cruiser tank that painters had to adapt to other vehicles. Mike Starmer has done a great deal of research and is the acknowledge expert on the pattern. I followed his plans as they appeared in Military Modeling Magazine, Vol 40 No 2.

The order rescinding the pattern and replacing it with a single color (Light Stone or Portland Stone) was issued in December of 1941. That does not mean all vehicles in Caunter were immediately repainting.

Matilda II & Panzer II

Decals on the Matilda are from the kit. (Note, if you chose to build the Matilda "Defiance" option in the kit, the WD number is incorrect.)

Again, the decals were applied using my normal methods. However, in this instance the decals cover some casting texture and rivets. In order to get the decals to settle into and over these features, Micro Sol decal solvent was used. This basically "melts" the decal allowing it to conform to rough surfaces. I took a few applications to get the decals to settle in. When using solvent, do NOT touch the decal after solvent is applied or it could come apart. If the decal seems to shrivel, don't worry. It will straighten out as it dries.



After decals, oil paint filters were applied. On sand-colored areas, filters of Titanium White, Yellow Ochre, Cadmium Yellow, Neutral Grey, and German Three Tone Fading were randomly applied. On the Panzer II these filters were actually used to change the apparent color of items that would have been applied as field modifications (some of the stowage, spare track bracket, etc.). Light Green and Silver Grey areas were randomly given filters of Yellow Ochre, Neutral Grey, and German Three Tone Fading. Dark Green areas saw the application of Neutral Grey, Faded Green, Sap Green, and German Three Tone Fading filters. Lower hulls and wheels were given filters of Burnt Sienna. Shadow areas received Purple filters. Chipped was applied using my normal colors with both a sponge and a brush. After chipping, dot filters of various oil colors were applied and blended into each other and surrounding areas. Again, these were added using my normal methods. The Panzer is seen above and the Matilda opposite top.



In previous builds, the dot filter step was used to add built-up sand and dirt. In the dustier desert environment, additional dust was added using oil washes of dust color created with Titanium White and Yellow Ochre. This was thinned with Mineral Spirits and applied with a brush to areas where dust would build up (crevices, horizontal surfaces, etc.)

Matilda II & Panzer II



Here we see the final result after the dust wash and pigments have been applied—a nicely dusty and dirty vehicle. Parts painted separately were also attached at this point.

Outlining of various details, hatches, and other components was accomplished with pin washes made with a mix of Black and Burnt Umber oil paints.

Note how the various filters, dot filters, and dust has lessened the contrast on the camouflage colors



Pigments were built-up in the mud/dust chutes on the side of the Matilda. This was done by piling the pigments in place and then fixing them with rubbing alcohol. The rubbing alcohol will attack acrylic paints, but the layers of Dullcote we applied acted as a barrier protecting the camouflage finish underneath.



Above left: The fuel can rack was glued in place on the rear of the Matilda. Compare this with photos of actual vehicles on page 36. This part clearly illustrates the fact that when making a part, how it is actually built or actually functions is irrelevant—the only thing that matters is how it looks. I feel my rack looks very close indeed to the actual item. Above right: This photo shows the damage sustained by the vehicle. The sprocket is bent and cracked, but has rotated some after the blast. The wheel that sustained the most damage, however, has frozen in place, being bent upwards and outwards.

COLORS and COLOR MIXES USED:

Unless specified otherwise, colors are Delta Ceramcoat craft paint. Apple Barrel paints are identified with (AB), Folk Art (FA), Vellejo (V), Vellejo Model Air (VA), Andrea is (A). Key: B = Base Color, L = highlight (1L, 2L = 1st highlight and 2nd highlight), S = Shadow. For color mixes, if no ratio is listed, the colors were mixed "by eye" until they looked right! The colors for each item are generally listed in the order they were applied. All airbrushing (the vehicle itself) was done using the Vellejo Model Air paints. Brush painting was done with all brands. All colors are acrylics unless specified otherwise. If items are not listed, they were painted the same colors as in my other builds (for example, rusty mufflers).

Panzer II Interior:**Ivory:**

S: Black Primer (VA)

B: US Grey Light (VA)/Touch of Black (VA)

1L: White Grey (VA)

2L: 1L + White added by brush to highest highlight areas only

Green:

S: Black Primer

B: German Green (VA) + Black

1L: German Green (VA)

2L: Light Grey Green (VA)

Black:

S: Black Primer

B: Black + Midnight Blue

L: Night Blue

Engine:

S: Black Primer

B: Black + Lead (A)

1L: Lead (A)

2L: Steel (A)

Rust: Brown Iron Oxide with rust-colored pigments stippled on Belts and Hoses: Charcoal with Pewter Grey (AB) highlights

Leather: A base of Autumn Brown was applied with Dark Burnt Umber and Black applied on this using my normal worn leather method

Periscopes: Black + Midnight Blue with Cam Green (VA) glass areas. Glass areas were also coated with Clear Gloss.

Panzer II Exterior:**Base Color:**

Black Primer

Deep Shadow: Tank Brown (VA)

Shadow: Tank Brown (VA) + Green Brown (VA)

Midtone: Greenbrown (VA)

1L: Green Brown (VA) + IAF Sand (VA)

2L: 1L + Aged White (VA)

3L: IAF Sand (VA) + Aged White (VA)

Camouflage Color:

Light Grey Green applied thinly allowing base color shading and highlighting to show through

Matilda II Exterior:**Light Stone:**

Black Primer

Deep Shadow: Tank Brown (VA)

Shadow: Tank Brown (VA) + UK Light Stone (VA) (1/3)

Midtone: UK Light Stone (VA)

1L: Midtone + Portland Stone (VA)

2L: 1L + Sand (VA)

Silver Grey:

Deep Shadow: Panzer Drk Grey (VA) + INT Grey Green (VA)

Shadow: Deep Shadow + INT Grey Green (VA)

Midtone: INT Grey Green (VA)

1L: Midtone + Duck Egg Green (VA)

2L: 1L + Aged White (VA)

Dark Green:

Deep Shadow: Black (VA)

Shadow: Black (VA) + Dark Green (VA)

Midtone: Dark Green (VA)

1L: Midtone + Light Grey Green (VA)

2L: 1L + Sand (VA)

Matilda Exhaust Pipes Heat Wraps:

B: US Grey Light (VA)

1L: Individual wraps picked out with Aged White (VA) or USAF Light Grey (VA)

2L: Wrap edges were outlined in White Grey (VA)

Periscope Glass:

Olive Green (VA) coated with Clear Gloss

German Jerry Cans:

Various colors: Panzer Dark Grey (VA), Black Grey (VA), Khaki Brown (VA), Green Brown (VA) highlighted and shaded appropriately

British Fuel Cans:

Various colors: UK Light Stone (VA), US Grey Light (VA), USAF Light Grey (VA) highlighted and shaded appropriately

Matilda Road Wheels and Return Skids:

These did not have rubber tires. Wear areas were painted Lead (A), highlighted with Steel (A)

Tracks (Both Vehicles):

B: Brown Iron Oxide/Black with a touch of Lead (A)

S: Wash of Black oil paint

L: Dry-Brush with Lead (A). Details and edges of guidehorns (and drive sprockets) picked out with Steel (A)

Dirt: Oil dust wash (mixed from Titanium White and Yellow Ochre).

Pigments were applied mixed with water—once dry, excess was rubbed off with a stiff brush



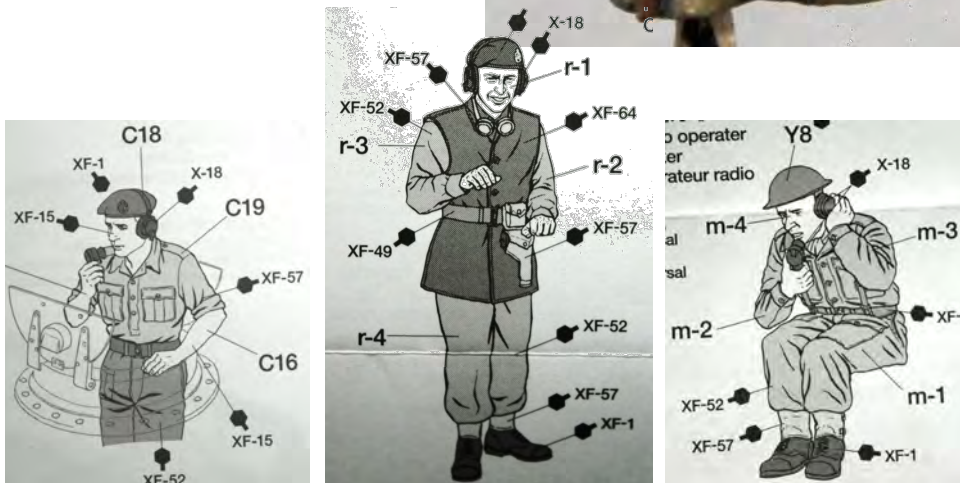


The Figure

Each kit includes a tank commander figure. As the German tank is abandoned (and is not in France) the figure from this kit was not used and went into the parts box along with the old sub-par Bandai figures included in their little Panzer II.

The Matilda also includes a figure. I like the pose with the figure talking into the microphone. He is in shirtsleeve order with sleeves rolled up. While there is nothing at all wrong with this, given the relatively cool temperatures in the Western Desert winter, and the fact that most photos from Operation Crusader show troops in full battledress, often with coats or leather jerkins I felt a more heavily-clad figure would be appropriate.

While I could have sculpted an appropriate figure as seen with the StuG III and Sd.Kfz 250/10 pieces, I chose to use Tamiya parts from the British Infantry Set (part number 32526). A tank crew figure in the appropriate uniform and pose was chosen. I used arms from another figure in the set.



Above Left: This shows, from the kit instructions, the commander figure included in the Matilda kit. I chose to replace this figure as I wanted a heavier-weight uniform to match photos and weather conditions during "Operation Crusader". The figure I used was made using the torso and head of the figure above center and the arms from the figure above right, both from the Tamiya British Infantry set. The legs were cut short to match the kit figure and allow proper fit in the Matilda turret. My figure is shown at right. Some minor adjustments and putty work were required on the left arm and shoulder. The headset and microphone wires are stretched sprue. The junction box is a small bit of epoxy putty. Colors used for painting were the same ones used for the figures in my Daimler Dingo build.





COMPOSITION



BRITISH GRANT TANK M3 TIPS ON BUILDING DIORAMAS

The photos seen here were the primary inspiration for this little diorama. Photos like the above—with a variety of different vehicles—are common from the Desert Campaign. Although neither tank was a “war winner” by this stage of the conflict, the superior vehicle is the victor in this little scene, which could easily have taken place during the Battleaxe or Crusader operations to relieve the besieged Tobruk.

Although the composition is very simple and basic, several different arrangements were tried before I settled on the one I believe works best.

Let’s examine my composition process as it applies to this little diorama.



The making of dioramas has become a popular way to display models. Mounting your vehicle and figures (or even without figures) on a landscaped base provides a setting for the model that adds enormously to the interest. The Monogram Kit represents a vehicle in mint condition, as issued. Rather than finish it with a fresh coat of paint as though it had just come off the production line, why not try your hand at making a diorama for greater realism.

Left: British Grant tank advancing past the knocked out wreckage of German armor at El Alamein. Diorama is based on a photo which showed the additional sandbag armor and the makeshift bracket welded rather sloppily to support the bags. Sandbags are Epoxybond, an epoxy putty, although Play-doh or other similar material could be used. Burlap texture was pressed into the putty with a piece of old T-shirt stretched on the tip of a finger. Seams and tears were then added with a knife.

Below left: German tank is an early “E” version of the Panzer IV carefully modified from a Monogram Panzer IV kit. Many open hatches (a feature noticeable in all photos of knocked-out tanks) necessitated some sort of interior detail. This was faked as much as possible with scraps and leftovers from various kits, artfully positioned to give the impression of the real thing. It’s a good idea to build up a scrap box of parts for this type of modeling.



PLANNING YOUR DIORAMA

The first step, even before you begin the assembly of the vehicle, is to plan your setting. You can duplicate the scene shown, or create your own. There are many books on the market today with pictures of vehicles as they looked in combat. A good source is your local library. Even the smallest library is likely to have histories of local combat divisions which are excellent source material. The pictures were often taken by G.I.’s themselves. Color photos if available are very helpful.

Imagination is the key ingredient in any diorama. A good imaginative idea does not necessarily need a slick and professional looking execution to be successful; even the average modeler can easily pull it off. On the other hand, don’t try anything too elaborate, especially at first. Find out what your limitations are, then work within them.

Diorama created by Sheperd Paine

MONOGRAM MODELS, INC.
Morton Grove, Ill. 60053 Copyright © 1973

My inspiration for this little diorama were photos like those shown on this page. The top photo actually shows a Matilda passing an abandoned Panzer II Ausf C in a manner very similar to my diorama. Many similar photos, with various tank types, can easily be found. Back in the 1970s, one of Shep Paine’s diorama pamphlets for Monogram also featured a similar composition. While I do not know for sure what process Shep used to arrive at his final composition, I arrived at a similar solution using my “Ten Commandments of Effective Composition”.

THE TEN COMMANDMENTS OF EFFECTIVE COMPOSITION

Effective composition is key to story telling, but is more than placing elements on a base. It requires careful planning. The viewer should quickly grasp what is going on. If not, the work has failed at some level. I use a tool I call my "Ten Commandments of Effective Composition" to transfer what I see in my "mind's eye" into a finished product. These are not carved in stone and do not all apply to every situation. They simply help transfer what I see in my mind's eye into the finished work. I do not consider them individually, but use them all in conjunction. They are not restrictive and do not take the place of imagination.

1. HAVE A SINGLE MAIN POINT. There can be several things going on at once, but like scenes in a movie, they should all work toward the main point. In a diorama or vignette, this is absolutely critical.

2. DIRECT THE VIEWER'S EYE. Large or prominent items are noticed first. Other things are generally viewed just as we read—from left to right. Things moving against the grain (right to left) will cause the viewer to pause. Viewers will naturally follow the glances and gestures of the figures. Arrange elements so viewers read the story in the proper order.

3. SHOW ACTION AND INTERACTION. Action is more appealing than static, but must be purposeful. Elements should interact in a meaningful way.

4. USE A TIGHT COMPOSITION. Tight compositions are visually more appealing than loose, open ones. They are better at conveying drama and stress.

5. HAVE BALANCE. Balanced compositions look better. Elements or action on one side of the composition should be balanced by elements or action on the other side. A large item on one side could be balanced by several smaller ones on the other side for example. Note that balance and symmetry are NOT the same thing! Symmetrical work can look contrived.

6. USE ALL THE ELEMENTS. All elements such as models, figures, base, nameplate, groundwork, and method of display are important. These things should compliment, and not contradict, the main story.

7. MINIMIZE DEAD SPACE. Empty unoccupied space is boring and detracts from – or deadens – the final result. Use a smaller base or put something relevant in the space. Dead space should only be used if it helps tell the story.

8. USE SHAPES AND ELEVATIONS. The size and shape of the base, groundwork, and composition can compliment and enhance the composition, help direct the viewers' eye, and provide balance. It's also usually best not to align elements parallel with the edges of the base.

9. ARTISTIC LICENSE IS OK. Use artistic license to fill gaps in knowledge, create a more visually appealing piece, or simply due to style. Use it to assist in recreating the feel, emotion, and drama of an event – to capture the impression rather than just look.

10. PLAY WITH IT. I usually try different arrangements and various bases before I settle on a final composition.

How does this composition compare with my compositional commandments (right)?

There are two vehicles, but there is clearly only one story and one action. The victor advances past the vanquished.

Although there is only one figure, there is still interaction. There is the implied interaction between the tanks (or at the least the units). There is the thrill of the victor advancing (albeit at a very slow pace with the Matilda). The commander speaks into his microphone, so there is the implied interaction between him, his crew, and other friendly vehicles.

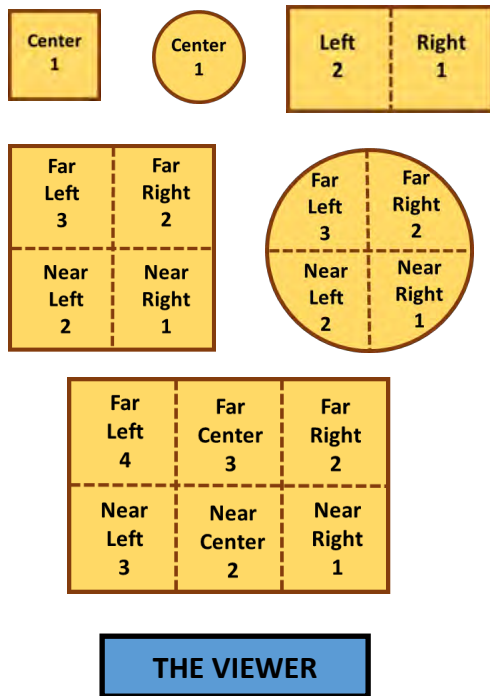
Even though the desert is barren, the close proximity of the vehicles and the fact the base is tightly framed around them keeps the composition tight and balanced and minimizes dead space.

For this work, let's take a closer looker at one important aspect of my 2nd Commandment, "Direct the Viewer's Eye". This is the fact that some parts of our composition are "visually stronger" than other parts. While not as critical in a small composition such as this one, understanding this concept becomes very important the larger our composition or the more in-depth our story is.

The viewer will first, as they approach, take an overall look at your composition. They will notice large and prominent things like large vehicles, buildings, hills, trees and such. Thus, large elements are visually stronger than smaller and less prominent objects. As they arrive, the whole thing will come into focus and, if the modeler has done his or her job correctly, the viewer will see what is going on, note the main focus, and in most cases will "get" the point the modeler is trying to make. If we've managed to capture the viewer's attention, they will pause to study the piece, taking in the details. They will likely view our piece from their left to right because we read from left to right which conditions us to view things in that same sequence. So the right side of the composition is visually stronger than the left because that is where our eye stops. We also notice closer things before farther things. Therefore, all else being equal, the strongest area of our composition is the near right and the weakest the far left (see accompanying diagram).

Thankfully, all else usually isn't equal. We can use a variety of tools to increase or decrease the visual strength of elements on our stage. And we can use this to emphasize or deemphasize certainly elements of our story. Clearly, important things must be visually stronger than supporting elements. We can alter the size of elements. If that supporting building, for example, draws too much attention, make it smaller. Elements can also be brought forward or moved to the rear to give them more or less visual strength. Increasing the elevation of part of our composition makes it stronger. Our eye also tends to follow linear features such as fences or walls, so we can use elements such as this to literally point at (or near) parts of our composition to lend them strength. Figures attract attention, so they can be placed on or near areas where we want to attract attention. We also

instinctively follow the gestures and glances of figures. Even the way an element or object faces or moves affects its relative visual strength. The viewer's eye is traveling from left to right, therefore things facing to the right tend to speed the viewer along, but things facing toward the left are moving against the natural way the viewer is looking—going against the grain, so to speak—and forces the eye to slow down. Elements facing toward the viewer are stronger than elements facing away. Even color can affect visual strength, with bright colors being stronger than weaker. Just take care that our gestures, glances, linear elements, and movement does not direct the viewer's eye out of our composition!



When we understand the relative visual strengths of each part of our composition, we can arrange our elements to their best advantage. These diagrams show various sizes of bases divided into imaginary areas. Each of these has been assigned a relative visual strength number from 1 (strongest) to 4 (weakest). Note the shape of the base really doesn't matter in this regard. All else being equal, things closest to us and located on the right side of a composition are visually strongest. But all else usually isn't equal. We can change (or reinforce) the visual strength of areas and elements through a variety of factors such as size, elevation, colors, activity, facing, etc. Larger items are visually stronger than smaller, higher things stronger than lower, activity is stronger and passivity, brighter colors are stronger than dull colors, things facing us are stronger than things facing away, and so on. We can use all this to draw attention to or away from areas or items in our compositions.

For this diorama, the 4-area square is the best match.

Another of my commandments, more applicable to this scene, is "Play With It". I generally have a basic idea of what I want before I start. There are times when the perfect composition comes to me in a flash of inspiration, but this is rare. More often, I start with that basic idea and work out arrangements and details through a process of trial and error. I take as much time as needed with this process because it's always time well spent. Even something as seemingly simple as this little diorama benefits from this process.

While it can vary, my process is normally similar from piece to piece. It starts with an idea. I will usually then make sketches and drawings. Once I am happy with these, if the composition is complex, I will proceed to working with 3D mockups of my idea. For a simple composition such as this one, I simply use the partially assembled models. I arrange and rearrange things until I am happy. Often a better idea or arrangement than the original will occur to me.

In addition to helping us get the best look, the process is key in determining the viability of our idea. For a simple scene, this usually isn't even a consideration, but for a more complex story it becomes vital. I like to show the mock-up to trusted friends to see if they "get" the point I am trying to make. If you are working from a photo, keep in mind you do not normally have to copy the photo exactly—not only would doing so limit your options, flexibility, and arrest your imagination, but that 2D representation may not translate well into a 3D diorama. We can now finalize the elements present, their arrangements, and their relationships to each other. We determine the poses, gestures, and expressions on the figures. Experiment—arrange and rearrange until you find the best possible arrangements. Do this even if you think you already have it - you may actually stumble onto something better and even come up with new ideas.

Don't be afraid to make changes when you discover something doesn't work or something else would work better. This may involve adding, deleting, changing, or moving an item or element. Maybe that building you planned is overshadowing your main event—make it smaller or replace it with something else. If a vehicle is too large, use a smaller one or reposition the one you have to a visually weaker portion of your stage. Make sure every element present should logically be there, is in a logical place, and is performing a logical activity. Maybe you have a very nifty little subplot or other idea, but it really doesn't work well with your main point—don't force it in; simply file it away for use with another project.

Let's see how this process benefited this little diorama.

Matilda II & Panzer II

1

PLAY WITH IT!

Let's look at variations to see how they enhance or detract from the composition. In all instances, we are looking at the composition from the point of view of the viewer. I used the sheet of paper with the corner of the sheet corresponding to the corner of the future diorama base. This allowed me to make base measurements straight from the compositional mock-up. Note the black line shows the rough size and shape of the base.

1: This mimics the photo that inspired the diorama. It is economical of space. The little panzer is on the right, but the visual strength of this position is counteracted by the larger Matilda facing toward the viewer with a figure in the hatch, making the Matilda the primary focus. However, neither vehicle is shown to good advantage with only the front and rear of the British and German tanks respectively being visible.

2

2: This is better. Although it spreads out the composition and shows each vehicle to somewhat better effect, it is still lacking.

3: The Matilda "crosses the T" of the little Panzer. This is my least favorite composition. While the above arrangements had the tanks basically facing toward each other as you would expect in a tank battle, here it appears the little Panzer was actually moving obliquely away from the Matilda. Also, the interesting damaged track side of the panzer is facing away from the viewer (had I completed this process before building the track, I could have rectified that). Finally, it results in a somewhat awkward long rectangular composition with little depth. The panzer could be turned around, but I think that would be worse—both vehicles moving the same direction with the panzer in a position looking as if it is attacking the larger tank.

3

4: We take the original composition and turn it 90 degrees and move the Matilda forward. I am happier, but this can still be improved upon. While the panzer occupies the visually strongest part of the composition and the Matilda the weakness, this is somewhat mitigated by size and direction of movement. The figure will assist. However, the panzer's placement and direction tend to rush the viewer out of the composition. The track damage is still on the non-viewed side of the composition.

5: Now I'm happy. This is nearly a mirror-image of #4, but the Matilda is also turned slightly toward the viewer. Both vehicles are shown to good effect. The Matilda is clearly in the strongest position, and both vehicles are shown to good advantage. The composition is a more aesthetically

pleasing square vs a rectangle. This composition calls for a base with a frontage of about 7.25—7.5 inches and a depth of 5.25—5.75 inches.

6. Here is the final composition sitting on my chosen base. Although we generally think of the Western Desert as very flat, this was not always the case with escarpments, passes, wadis, and other rough ground being present in some areas. Here we further enhance the relative visual strength of the Matilda by placing it on somewhat higher ground, made using a 1/2 inch sheet of Styrofoam. This also adds visual interest to the composition. The height increase also draws more attention to the Matilda and emphasizes its superiority over the little panzer. Note that this change would be most effective on compositions #4 and 5, but would potentially unbalance compositions #1 and 2.

Note also that in all of these compositions, neither vehicle is parallel to the other or to the base edges. This helps give the scene the look of spontaneity and randomness. Items parallel to base edges tends to imply orderliness and uniformity.

Although in reality, most of these compositions have similar amounts of open, “dead” space, #4 and 5 appear to have less—probably because in the other compositions most of this space is all in one area while in these two it is broken up in small areas primarily at the corners.



So, going back to the aspect of the 2nd commandment we discussed earlier, the Matilda is clearly the main focus. While the little panzer is closer to the viewer and moves against the viewing grain, the Matilda is to the right, on higher ground, is larger, features a figure, and is moving toward the viewer while the little tank is moving away. Thus, by manipulating our composition, the near right side is not always the visually strongest. We can also often improve our compositions simply by trying several different arrangements before we lock-in our final choice. We should rarely assume that our first idea is always the best.

Of course, a lot is determined by personal preference. Many viewing this may prefer one of the other compositions! But I believe most will agree with my choice.

BASE AND GROUNDWORK



As befitting a diorama set in the Western Desert, the ground is relatively featureless, bare, and rocky. That doesn't necessarily mean our groundwork must be boring. The desert features a surprising amount of color in the various rocks and sands. The slight elevation changes in this composition also add visual interest as we have seen.

However, before building our groundwork, we must select a base. For this piece, I felt a low, flat base would work to best effect. Also something in a fairly light brown color would best complement both the vehicle and the ground. I settled on a relatively inexpensive yet attractive and nicely made picture frame designed for a 5 x 7 inch photo. The recess in the face of the frame allowed me a working space of 5.5 x 7.5 inches—exactly perfect for this composition. A quarter inch sheet of plywood was cut to shape to fill this recess providing the base for the groundwork. This was fixed in place using Elmer's Wood Glue. Contours were made from a half inch sheet of Styrofoam. The groundwork itself was made using my normal Celluclay material and my normal methods. Let's look at how these were applied to this build:



My base ready for the application of groundwork. The base itself is a picture frame designed for 5x7 inch photos. The recessed area in the middle of the frame is exactly the right size—5.5 x 7.5 inches. This space was filled with a 1/4 inch sheet of plywood. At the rear (the nearest side in this photo) of the base extending down the sides, an edging of 1/16 plywood stained in a darker contrasting color was added to frame the area of higher ground. The higher ground was made of Styrofoam and fitted into the frame.



It is nearly impossible to cut Styrofoam with a knife as it will shed and flake bits and pieces and little balls of foam everywhere. By far the best method is to use a hot knife. I have had this one for decades. It is similar to a soldering iron or a wood-burning engraving tool but mounts a chuck for X-Acto blades. Once hot, it easily slices and shapes the foam. If I need to make deeper cuts than the blade allows, I replace the blade with an appropriate length of clothes hanger wire!

WAREFARE IN THE DESERT:

The war in North Africa was waged on mostly flat, featureless, rocky, sparsely populated desert terrain. In most areas the ground is relatively devoid of cover and is hard to dig into. Conditions are harsh—summer daytime temperatures average near 104 degrees and can exceed 110 degrees, and at night temperatures can fall to near (or below) freezing. Winters can be quite cold. Rainfall is rare - less than an inch per year. Sand storms are frequent and blinding.

Lack of landmarks made navigation difficult. It was easy to get lost. Specialist British units, such as the Long Range Desert Group (LRDG) and Special Air Service (SAS) mastered desert navigation. With vehicles modified for the environment, they were very successful at using the trackless interior to reach German rear areas for both raiding and reconnaissance. The Germans never had an effective answer.

It was the most technological theatre of the war, meaning it was purely mechanized warfare, fought with no horses or mules until fighting reached Tunisia. But the rocky ground and fine sand were hard on vehicles and equipment, requiring special filters be fitted. Engines and tires wore out quicker than in other climates. Lack of paved roads, dust, and sand destroyed engines and springs resulting in an extremely high breakdown and unserviceability rate. For example, in January, 1942 nearly 70% of the 21 Panzer Division's authorized vehicles were either lacking or unserviceable. Allied vehicles were better designed to operate in the environment than German vehicles, and the Afrika Korps relied heavily on captured vehicles.

North Africa was a logistician's nightmare. Roads were scarce and supply lines often extended hundreds of miles from ports and railheads. Essentials of modern warfare—water and fuel—were hard to come by and had to be trucked from distant supply points.

Rations were monotonous and delivery was unreliable. German field rations were not designed for the environment. Captured British rations were highly prized. The daily water ration could sometimes fall to as little as half gallon a day per man for all purposes—drinking, bathing, and keeping vehicle radiators full.

Flies were a common complaint of all soldiers of all armies. The swarms could not be escaped and got into everything. They made eating difficult, and carried disease. This, combined with poor rations and lack of proper acclimatization, resulted in high numbers of personnel being on the sick and disabled lists.

While many WWII campaigns displayed a disregard for humanity peppered with atrocities, the desert war was fought relatively "cleanly", often marked by a mutual respect and humanity on both sides. Why was this so? I see a few contributing factors. One was the harsh environment where shared experience created a common bond. The other was that the very nature of the terrain meant population was sparse, and thus civilian casualties were very low. This spared combatants the moral dilemmas encountered in more densely populated regions. Just as important were the quality of the soldiers and leaders. The soldiers considered themselves elite, and both sides were led by moral men who respected their enemy and the rules of war. More "barbarous" units—such as the SS—had a smaller presence. This is not to say that the battles were not fiercely contested or that the laws of armed conflict were never violated. Engagements were fought with great violence—but when the smoke cleared, the prisoners and the wounded could expect to receive fair and proper treatment.

The shared experience of the harsh environment, the professionalism of the armies, and the (relatively) humane conduct of the war are probably key reasons why the campaign has an enduring fascination and is remembered by the participants with less of the bitterness we see in many other theaters of the war.



THE REAL THING

We usually think of the Western Desert as flat and featureless, and in many areas it certainly was. But there was still variation. Many areas were bare rock, where digging in was nearly impossible. Other areas comprised deep sand, making going difficult. Some areas lacked vegetation while others were covered with camel thorn growth. Most places were relatively flat, but there were also areas of escarpment, dunes, or places cut through with wadis. Look at these photos. In all three, the terrain is relatively featureless rock and sand. But none are absolutely flat. The top photo shows a Matilda dug into a hull-down position. It sits on a ridge or rise overlooking a vast flat plain. The second photo at first glance appears to show an absolutely flat landscape, but closer study reveals the land is very gently rolling. Such slight rises and dips were often enough to give a vehicle the advantage of hull-down cover or to help conceal an anti-tank gun. The bottom photo shows a low, but fairly steep rocky rise. And there was, of course, the occasional oasis, cistern, fig tree, coastal village, or other feature.

All this provides more possibilities to the modeler creating a diorama or vignette in the Western Desert—you are not locked into flat and barren. The groundwork in this diorama was inspired by these and similar photos.

Operation Crusader took place in November and December of 1941. Although Desert temperatures can be unbearably hot during the summer, they are much milder in the winter. But it can very cold at night. In November, the average high in the Western Desert is about 75 degrees Fahrenheit. Low is below freezing at about 25 degrees. December is cooler with a high near 70 and low around 20 degrees. In photos of the operation, most troops are wearing standard battledress. Absent are the shorts, rolled shirt sleeves, and knee socks we often picture when we think of British troops in North Africa.



The shaped foam was glued in place on the base.



As is my normal method, metal paperclip wire pins were glued into holes drilled up through the bottom of the tracks into the wheels. These are matched to holes drilled into the base for the Panzer II. For the Matilda, elevated on foam, these were fitted to holes drilled into small lengths of dowel rod sunk through the foam to the base. This provides a stable, very secure mounting platform for the vehicles.



A hole was bored for the mine crater. Note the tank did not immediately stop, but rolled forward a bit—a little more than a road wheel's length—after being disabled.

The vehicle mounting holes were marked with lengths of toothpick to ensure they did not get plugged up. Groundwork is my normal pre-colored Celluclay. Fine sand was sprinkled over the entire surface and lightly pressed into place.



Track marks were pressed into the soft Celluclay and the vehicles temporarily fitted in place.



With the vehicles in place, larger rocks were glued into the surface of the groundwork. This was done with the vehicles mounted to ensure the rocks did not interfere with the fit of the tanks.





With the tanks removed, the Celluclay was allowed to cure. In this view, we see the base ready for painting.



The plaster stones were stained with various washes of browns and greys. Next, the shadow color (Vellejo Model Air Cam Med Brown) was sprayed in tank track marks, around rocks, and in shadow areas.



Over this was sprayed a fairly uniform coat of Vellejo Model Air Green Brown with only a little of the Cam Med Brown mixed in. This was sprayed very thinly at low pressure straight from above. This allowed underlying colors to show through and did not obscure shadows. It served more to blend and soften the colors than to really alter them.

Over this, a 3/1 mix of Model Air IAF Sand and Green Brown was sprayed (again thinly at low pressure) onto rocks and highlight areas.

A final highlight of the same mix with Aged White added was sprayed only on all areas of the base receiving sunlight. I avoided areas that would be underneath the tanks and thus shaded from direct sunlight.



While I used an airbrush, all of the above steps could be done with a brush, using washes for shading and dry-brushing for highlights. It could be accomplished using the acrylics I use or even with oil paints. The last step must be done with a brush and can only be achieved using pigment or pastel powders. These are applied, blended, and rubbed in using a soft brush as seen. Various colors including sand yellows, grey, ash, and medium and light rust colors were used. Blending the rust and ash colors results in areas with a slight pinkish hue, matching descriptions of the desert. Blast marks in and radiating from the crater were added with Black pastel powder. While this may appear a bit exaggerated in this photo, it will be largely obscured by the tank which will cover large parts of it. The exaggeration will help keep it visible and will serve to draw attention to it.

Judging: 1st, 2nd, 3rd vs. the Open System – and How to Build Award-Winning Models

Disclaimer: I have attended model shows, but I have not competed. All my competition (and judging experience) has been in figure shows using the “Open System” of judging. For nearly 20 years I have participated (and judged) in nearly all categories – Figure Painter’s and Open (stock and converted/scratch-built respectively), Model Painter’s and Open, Fantasy/Sci-Fi Painter’s and Open, and Dioramas. My work has won numerous Bronze, Silver, and Gold medals and many special awards—including People’s Choice Awards and several Best-In-Show awards. The “Open System” is, in my opinion, better. You’re free to disagree, and if your show uses a 1-2-3 place system, that’s your choice. I will explain my preference.

A 1st-3rd system has clear winners (1st-3rd) and clear losers (everyone else). This can be discouraging to those not in the winner’s circle. It can also appear unfair – an outstanding model in a category heavily loaded with outstanding models may get no recognition, while a festering pile of excrement in a sparsely-populated category may get a first place ribbon. Since the winners win at the expense of the losers, judges must be as objective as possible. This leads to “checklist” judging. While not, in itself, a bad thing, this tends to concentrate almost totally on the technical aspects of assembly and removes the subjective “artistic” and “impact” aspects. As otherwise stunning model with a minor assembly flaw may lose to a mediocre piece that is well-assembled.

In the “Open System”, each model is judged—and awarded or not—on its own merits. No piece earns an award at the expense of another piece. In a heavily populated category, if there are a dozen pieces worthy of gold medals, all will get gold. Same with silver and bronze. If no pieces are worthy of gold, none are awarded. While this doesn’t prevent the use of an objective checklist if the show wants to use one, it allows the judges more latitude; the paint job and overall appearance can be weighted more heavily than in a checklist-based system. More subjectivity can be exercised in the Open System—IF the club so chooses.

The one-two-three system is, in my opinion, a “punitive” system where pieces are eliminated until you have three the judges consider the best. In a well-populated category with a high standard of work, this can be hard on judges, time consuming, and result in disappointment and heartburn. The “Open System”, by comparison, is a “rewards-based” system where each piece stands on its own merits and not the flaws in other pieces. Each artist is awarded based on the quality of his or her work alone and NOT on the quality of his competitors.

Not every model need be judged. In most figure shows, an artist puts all his pieces together in a single display within a particular category (or has a display in each of several categories). A team of three judges goes through each category and, *jointly*, selects the best piece, or pieces, from each artist. They then go back *individually* and score the selected pieces: for example, by awarding 1-4 points. The head judge totals the points, for a sum of 3 to 12. Earning 11-12 points means gold, 9-10 points is silver, 6-8 points earns a bronze. A lesser score and the piece is given a certificate of merit. While not a medal, the certificate still recognizes the modeler for participating and identifies his or her best work. Everyone earns something and knows exactly where their best piece(s) stand in relation to the other entries. And since the selected pieces are scored individually and the scores are totaled by a head judge, the judges themselves don’t know what award a piece earned until the awards ceremony! This helps remove potential favoritism (or least the appearance/accusation of favoritism). The standard used is up to each show—they can set the bar as high (or low) as they wish.

Make no mistake, the awards are important. Some say shows should be display only with no awards. I, actually, would prefer such shows. However, there have been such shows in the figure world, and they were not well-attended. One soon folded and the others adopted the Open System. Some of us eventually outgrow the excitement of receiving an award, but recognition is important for many, and the desire to earn higher awards is a catalyst to improve.

No matter the judging system used, clubs strive to have the best judges possible. Most clubs require the judge to be an accomplished modeler, and mandate that judges receive training and/or serve as an “apprentice” (basically a fourth judge in a category learning the ropes) before they judge on their own. Regardless of the judging method, each category still has the same numbers of models, so neither method is necessarily faster than the other, but the 1-2-3 system is potentially slower due to the scrutiny often required to narrow the field.

Most “Open System” shows judge on five criteria only: degree of difficulty, creativity, workmanship, painting skill, and presentation/overall effect. These factors do not have to be weighted equally. In a “Painters” category (stock) basic modeling/painting skill is obviously the main factor, while in an “Open” category (conversions, scratch-builds), workmanship and degree of difficulty may be the most heavily weighted. In dioramas, presentation/overall effect is usually given extra weight. No matter which method a club uses, the most important thing is that the judges work to the same criteria in judging entries.

You likely noticed that historical accuracy is NOT one of the criteria. Some may disagree, but in the words of Shep Paine (the developer of the Open System), “...it is simply impossible to judge all models with equal severity... An entry on a familiar subject is likely to be penalized for even the slightest error, while major errors in a more obscure subject escape totally unnoticed. Even acknowledged experts in a given field (and there are few enough of these) cannot possibly carry enough information about in their heads to judge all entries in that field fairly... Many modelers are themselves amateur historians who do original research of their own—surely it is better to let a few historical culprits go free than to unjustly penalize an enterprising researcher for information the judge could not have been aware of... Ultimately, the best advice for judges is this; if you see an obvious and blatant error, it cannot help to shade your judgment, but if there is any doubt, give the competitor the benefit of that doubt – he has devoted more time to the model than you have, and he just might be right.”

“International Judging Criteria”, or rules for the Open System, can be found on the Military Miniature Society of Illinois webpage and on the websites of other clubs that use similar systems. The International Plastic Modeller’s Society (IPMS) usually uses a 1-2-3 type of judging and has a very complex, checklist-oriented judging system. Their rules can be found on their website. The Armor Modeling and Preservation Society (AMPS) uses a “modified” version of the Open System, and the rules can be found on their website. Their system is a compro-

mise between the pure open system used by most figure shows and a more objective checklist-based system of judging. But regardless of the method a club/show uses, the best thing you can do to prepare is to know the rules and what is expected.

I build models for me—if they win an award, great. If not, fine. But for some, awards are important. Here are some tips, based on my years of competing/ judging. These tips should hold true regardless of the judging/award systems in use. While these things seem intuitive, I'm often surprised by the number of entries that fail in these particular regards.

- Check the rules/judging criteria of the organization. All are slightly different, none are secret. Know what the judges are looking for.
- Good basic work is vital. Assemble the kit neatly and correctly. There should be no visible ejector pin marks or inappropriate seams, joints, or gaps. There should be no glue marks and sanding scratches. Equipment should properly attached and not hanging in space
- Scratch-built and converted parts—and extra detailing as appropriate— are looked upon favorably (but stock is perfectly fine). However, the work should be well-executed. Drill or hollow out gun barrels. Make sure straps are proper thickness and show a sense of weight.
- Painting should be smooth with no inappropriate brush marks or fingerprints, runs, smudges, cracks, etc. Colors should be appropriate. If using washes, be careful of “tide marks” or hard lines forming. Dry-brushing should be subtle. Items should display the proper texture and sheen. Most importantly, be neat and paint “inside the lines”.
- Decals, if used, should be properly applied with no “silvering” or film showing around the edges.
- Weathering, when used, should be convincing, appropriate, and in scale. It should be consistent – for example you shouldn't have muddy road wheels with clean tracks or undercarriage. Don't use weathering to hide assembly flaws.
- For figures, faces are the most important. Pay attention to skin tones—they should reflect the climate the figure is in. Eyes should be the same size and look in the same direction. Don't forget the details—everything should be painted to a high standard, whether it's a stand-alone figure or one supporting a model as part of a diorama or vignette. A mediocre or poor figure will bring the appearance of any otherwise outstanding model down.
- Be consistent. Make sure the shading, highlight, weathering on all elements - figures, vehicles, groundwork, etc. - are appropriate and consistent. The piece should appear as a unified whole.
- Overall presentation is key for dioramas and vignettes. The base for any kit should enhance its appearance rather than detract. Models should sit properly on the ground—a tank is heavy and should not have hovering wheels/tracks - it should show a sense of weight. A model can have a "WOW" factor. Kits that make judges look twice because of dynamics and presentation may receive better marks—and a dynamic kit or a diorama with a great story may be more easily "forgiven" for minor errors. More importantly, it will be more popular with the show attendees.
- Dioramas should have good composition and tell a story. All elements should be done to the same standard. Vignettes are about the same, but do not require the story.
- Don't forget to clean the display dust and cobwebs off figures and models.
- Help the judges! You can (and should in case of conversions/scratch-builds) provide details on how you made the piece and any appropriate references/historical information used. You can even get bonus points for this in AMPS competitions.

My most important advice when attending model/figure shows? Have fun. Meet other modelers and make new friends. Catch-up with old friends. Check out all the wares on offer in the vendor area. Study the models on exhibit and talk with, and learn from, the modelers. If you chose to compete, put your best work forward and be proud of the award you receive. If you don't get the level of recognition you think your work deserves, don't get (too) upset—use the experience to improve your pieces so next time you do get that award.



Building and Painting a
Matilda II and Panzer II
In 1/48th Scale



Armor Modeling Vol# 5

In this volume, we will discuss not only building and painting,
but will also look at kit bashing, detailing, battle damage,
and creating dioramas

by Kevin Townsend